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ABSTRACT

Societal developments occurring within the United States over the next 10 to 15 years that should be considered in constructing the new master plan for higher education in Pennsylvania are explored in this research report. National data collected by the Institute for the Future are re-interpreted along with newly-synthesized information related to Pennsylvania. Societal trends and educational goals are reviewed in terms of: age distribution, geographic distribution, households and families, income levels and distribution, labor force participation, occupational mix, unemployment and underemployment, provision of social services, personal stress, organizational complexity, and attitudes toward technology. Equal educational opportunity and quality education are examined in a subsequent chapter, followed by studies of programs and services, delivery systems, and finance. Statistical data are included throughout the report. (LBH)

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Alternative Futures and Postsecondary Education in Pennsylvania

A Context Document Preceding the
Master Plan for Higher Education
in Pennsylvania

Robert Johansen Maureen McNulty

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INSTITUTE FOR THE FUTURE

R-39

A report of research conducted under a grant
from the Buhl Foundation and Pennsylvania
Association of Colleges and Universities

HE009401

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ALTERNATIVE FUTURES AND
POSTSECONDARY EDUCATION IN PENNSYLVANIA

A Context Document Preceding the
Master Plan for Higher Education in Pennsylvania

Robert Johansen

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Report R-39

July 1977

A Report of Research Conducted Under a Grant from
The Buhl Foundation and
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INTRODUCTION

The research reported here was accomplished over a three-month period under a grant from the Buhl Foundation and the Pennsylvania Association of Colleges and Universities. The structure of the first chapter is based largely on a recent study of societal developments affecting postsecondary education in the United States conducted by the Institute for the Future.* The overall purpose of this report is to re-interpret the national data, as well as newly synthesized information relating to Pennsylvania, identifying basic societal developments for consideration by task force groups contributing to the development of the new Master Plan for Higher Education in Pennsylvania. For this reason, chapter headings in the report conform with the five task force areas chosen for the master planning process.

While the primary recipients of this report are those beginning to plan for the future of postsecondary education in Pennsylvania, the document is also applicable to the needs of more general audiences. Those interested in postsecondary institutions and learning will find here an attempt to sort out the complex mix of social forces which shape and are shaped by education. Those interested in long-range planning or futures research will find an attempt to link the exploration of the future with the practices of planning.

Our work has been both stimulating and humbling. The success of our efforts will be based on the report's utility for the master planning process in Pennsylvania as well as its potential as a starting point for future planning efforts in other states.

*Robert Johansen and Patricia A. Samuel, *Future Societal Developments and Postsecondary Education: A Handbook for Citizen Organizations*, Institute for the Future, Report R-38, 1977. Both this report and the current study have focused on societal developments within the United States. We hope that a study examining international factors can be undertaken in the near future.



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Planning Commission
Harrisburg, PA 17126

Dear Mr. Rea:

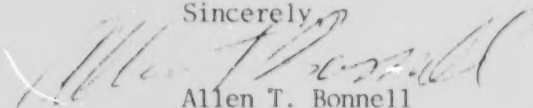
The Pennsylvania Association of Colleges and Universities (PACU) recognizes the contributions of the Buhl Foundation of Pittsburgh whose support has made it possible for us to commission the preparation of this Master Planning Context Document for Pennsylvania Postsecondary Education by the Institute for the Future. This document will contribute significantly to the Master Planning process which is currently proceeding under the policy guidance of the State Board of Education.

Institute staff, building upon their national study, have provided insight into issues of societal change confronting Pennsylvania. PACU is particularly impressed by the Institute's ability to produce a substantial report in only three months.

Obviously, no such "futures" document can describe all of the possible scenarios which might eventuate for our State and its higher education community. The statistical projections and other analyses in this document are intended to provide perspective and scope to planning. The Institute's futurists have produced a document which may be utilized along with other source materials to stimulate productive and enlightened speculation among the people who are revising Pennsylvania's Master Plan for Higher Education. The Institute has fulfilled its commitment in an appropriate and timely way.

The Executive Committee of PACU thanks the Institute for interrelating in this Context Document a wealth of significant data with a range of possible assumptions which our Master Planning Task Forces must evaluate during the coming months. It is our hope that all Pennsylvanians will benefit from their efforts.

Sincerely,


Allen T. Bonnell
President

SUMMARY

This report explores those societal developments occurring within the United States over the next 10 to 15 years which should be *considered* in constructing the new Master Plan for Higher Education in Pennsylvania. (It does not, however, pretend to predict the future or prescribe what should be *done* in the Master Plan.)

It would be unwise to assume that a single overall pattern of change is most likely to emerge. The range of alternative futures introduced in Chapter I is exceedingly broad. Many of the changes underway in U.S. society appear disturbing. Inherent in these fluctuations, however, is the potential for new and expanded contributions by postsecondary education institutions. Consider the following examples:

- *The median age of the U.S. population will increase substantially over the next 10 years. This trend indicates a decrease in the number of people who are of traditional college age but a large increase in older persons who could benefit from postsecondary education. An upward shift in student age will bring numerous opportunities for educational offerings; programs for continuing education, renewal of credentials, and career redirection are only a few of the possibilities. Institutions which anticipate the needs of older students can successfully tap a new student market rather than suffer critically from the decline of the old.*
- *The increasing trend toward living in nonmetropolitan areas suggests potential problems for centralized (especially urban) campuses. Transplanted urbanites will still have their need for intellectual stimulation. In addition, they will have a whole set of new learning needs associated with life in semirural and rural locations. Institutions should explore and plan imaginatively for potential extension courses, teleconference teaching, and other means to reach a redistributed student body.*

- *Problems of underemployment are likely to become critical within the next decade, as an increasingly well-educated populace searches (sometimes in vain) for fulfilling work. Precise predictions of future job needs are simply not possible; postsecondary institutions will need flexible offerings. Programs responding to midlife career shifts and emerging educational needs within corporations could prove valuable. Programs which emphasize values shared by many Pennsylvanians, such as those geared toward self-sufficiency, could be pursued aggressively. Student services will also need reorienting toward life and career planning to help students relate creatively to a potentially volatile employment situation.*
- *Problems of personal stress could become critical for many persons over the next decade. While the nature and measurement of stress are only beginning to be understood, it seems clear that modern society is very stress-producing. Postsecondary education could do a much better job of preparing students, faculty, and community residents to respond creatively to stress, as well as make critical assessments of the relative value of "self-improvement" or quasi-religious programs which are likely to be promoted with great vigor over the next decade.*

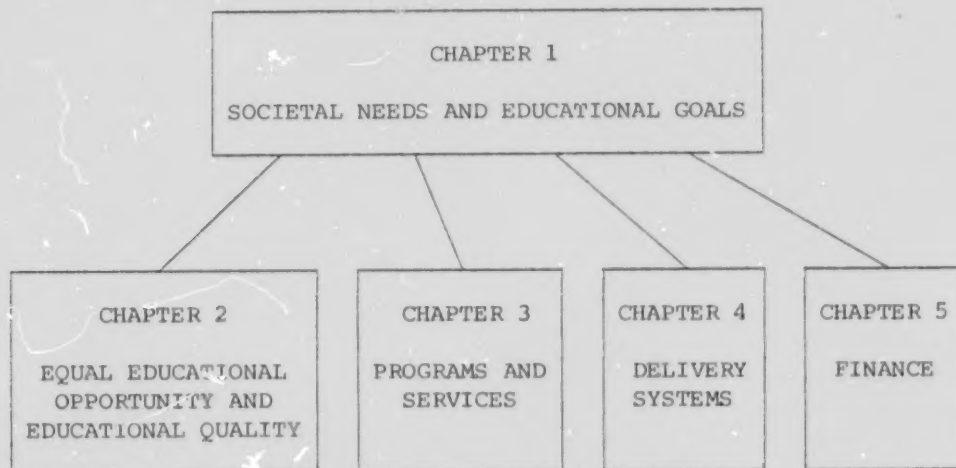
The overall picture of societal change suggested by these examples and others given in this report is not very comforting. Nevertheless, there are real opportunities for creative responses by postsecondary education.

Our study suggests that currently Pennsylvania is closely linked with the problems of the next decade. Those components of change that are threatening at a national level are at least as critical in Pennsylvania. Whether or not Pennsylvania postsecondary education institutions can generate possibilities which counter the evident problems is a question which will confront all those involved in writing the new Master Plan. Our work provides only a context and a preface to that endeavor.

HOW TO USE THIS REPORT

This report is arranged so that the first chapter ("Societal Needs and Educational Goals") is assumed as a foundation for each of the following chapters. Thus, even a reader with specific interests (e.g., finance or programs and services) will read at least two chapters: Chapter 1 and that chapter which relates to his or her specific interests. The recommended approach to reading is to skim the entire report for an overall perspective, returning to concentrate on those areas which are of particular concern.

The structure of the chapters can be diagrammed as follows:



While Chapter 1 presents information basic to the following four chapters, there are also many points which call for cross-referencing among the chapters. These points are indicated in most places by marginal symbols referring to one or more of the other chapters. Thus, a reader with interests related to a particular chapter will read Chapter 1 and the chapter

of special interest, then scan the remainder of the report for marginal symbols referring to that area of interest. The following symbols have been used in this cross-referencing.

= CHAPTER 2
= EQUAL EDUCATIONAL OPPORTUNITY AND EDUCATIONAL QUALITY

★ CHAPTER 3
PROGRAMS AND SERVICES

→ CHAPTER 4
DELIVERY SYSTEMS

\$ CHAPTER 5
FINANCE

This report is not a prediction or a prescription for the future. It merely suggests societal developments which should be considered by those planning for higher education in Pennsylvania. It is a report which must be used actively: readers should question it, think about it, and argue with it. Specific examples should not be allowed to restrict readers' perceptions about the relationship between societal developments and educational needs. Rather, they should serve as starting points for creative thinking related to each individual's frame of reference.

I. SOCIETAL NEEDS AND EDUCATIONAL GOALS

THE IMPORTANCE OF PERSPECTIVE

Myriad views about future developments will confront the Task Force on Societal Needs and Educational Goals. Discordant metaphors describe the future as bringing a "Post-Industrial Society," an "Age of Equilibrium," a "Technocratic Order," or even the rise of "Consciousness III."

Two critical pitfalls await those who consider future developments. One is becoming overwhelmed by the quantity of information about societal directions;* the other is prematurely or unconsciously adopting a particular perspective and excluding others from consideration. These temptations are alluring. Awareness of them should serve as "quality checks" on both the information presented in this chapter and work such as that to be performed by each task force in the master planning process.

Identification of pitfalls is an important preface to considering societal needs as they might relate to educational goals. The choice of specific issues for consideration will proceed from assumptions about the nature of societal changes. For every individual basic, culturally pervasive notions about whether the years ahead will be "better" or "worse" combine with a uniquely woven tapestry of personal experiences to form the basis for these assumptions. Often unconsciously held, they have profound effects on the type of future one is capable of imagining. In shaping the learning opportunities and, indeed, the quality of life, for large numbers of people,

*Michael Marien, *Societal Directions and Alternatives*, La Fayette, NY: Information for Policy Design, 1976. This annotated bibliography lists 1,015 sources, primarily books, with critical responses to most. It is an invaluable reference book for those interested in changing societal needs, but also demonstrates the volume of literature involved in the study of alternative futures.

educational planners need to consciously examine their own base of assumptions for viewing the future. It is important to acknowledge the range of possible futures before developing a focused framework for decision-making.

Five alternative views of the future, all of which have been seriously projected, are contained in scenario form in Appendix A.* Representing just a few of many possibilities, they are included here only to illustrate the diversity of existing viewpoints. It is not clear that any of these scenarios will actually happen. A combination of two or more could occur, or a future not described here at all.

Michael Marien has identified 63 "evolutionary stage theories," all of which purport to describe transitions currently underway in our society.** He makes it clear that existing literature is an important source of information about patterns of societal change, though it is a source too often ignored in planning efforts. There is little consensus or cross-fertilization among these widely varied points of view, though certainly some (e.g., the transition from an "industrial" to a "postindustrial" society) have received more popular exposure than others. Aggregating them by their authors' designations (see chart, following page), Marien underscores the breadth and confusion among published opinions on overall patterns of change.

Whether or not one of the patterns summarized here is accepted as a general view of societal change, it is important to note that *some* choice--even if it is an unconscious one--must be made. We all have *some* image of the future, as well as the option to determine how explicit and systematic that image will be. Clarifying one's assumptions about the underlying processes of social change is a crucial first step in examining specific societal needs and their potential effects on higher learning over the next decade. It is then possible to turn to specific data about components of societal change.

*Other research efforts have developed scenarios representing ranges of alternative futures in more detail than is presented here. For instance, see Duane S. Elgin, David C. MacMichael, and Peter Schwartz, *Alternative Futures for Environmental Policy Planning*, Center for the Study of Social Policy, Stanford Research Institute, Menlo Park, California, 1975. This report contains 10 detailed scenarios showing variations in energy, climate, values, and food.

**Michael Marien, op. cit., pp. 391-3.

AN INDEX OF EVOLUTIONARY STAGE THEORIES*

Item No.	Present or Receding Stage	Next or Emerging Stage	Author and Date of Publication
General Overview of Change			
	Civilized Society	Post-Civilized Society	Boulding, 1962
	Industrial Age	Age of Acceleration	Frankel, 1958
	Society as organic entity	Society as organizational entity	Seidenberg, 1950
	Liberal Era	Post-Liberal Era	Vickers, 1970
	Configurative Cultures	Prefigurative Cultures	Mead, 1970
	Culture	Post-Culture	Steiner, 1971
	Modern Age	New Dark Ages	Lukacs, 1970
	Age of Expansion	Age of Equilibrium	Mumford, 1944
	Fourth Revolution (Science)	Fifth Revolution (fuel Shortage)	Darwin, 1953
The Technological, Affluent, Service Society			
	Democracy	Technocracy	Meynaud, 1964
	Industrial Society	Technetronic Society	Brzezinski, 1970
	Unmanaged Society	Managed Society	Bates, 1974
	Democratic Government	Expert Government	Beckwith, 1972
	Patrimonial Order	Technocratic Order	Geiger, 1973
	Modern Age	Post-Modern World	Drucker, 1959
	Industrial Age	Service Age	Glenday, 1944
	Manufacturing Economy	Service Economy	Fuchs, 1965; 1968
	Industrialism	Super-Industrialism	Toffler, 1970
	Industrial Capitalism	Socialistic Service or Consumer Society	Gartner/Riesman, 1974
	Industrial Society	Post-Industrial Society	Bell, 1966; 1973
	Production-centered Industrialism	Neo-Industrialism	Meadows, 1971
	Economy of Abundance	Era Four, A Time to Live	Chase, 1960
	Era of High Mass Consumption	Beyond Consumption	Rostow, 1960
	Politics of National Welfare	Politics of Abundance	Organski, 1965
	Mechanization	Socio-Organization	Jaguaribe, 1973
	Early Modern Stage	Modern Stage	Peacock/Kirsch 1970
	Period of Sovereignty	Society of Individual Contracts	MacCallum, 1970
	Metropolis, Megalopolis	Ecumenopolis	Doxiadis, 1968
	Machine Age	Systems Age	Ackoff, 1974
Cosmic Evolutionary Views			
	Rational Age	Spiritual Age	Sri Aurobindo, 1949
	Noosphere Expansion	Noosphere Compression	Teilhard de Chardin, 1956
	Onlooker Age	New Imagination	Davy, 1961
	Second Great Awakening	Third Great Awakening	Wolfe, 1973
	Second American Frontier (exploiting environment)	Third American Frontier (individual/social change)	Elgin, 1975
	Traditional Culture	Somatic Culture	Hanna, 1970
	Civilization's End	Dawn of Transformation	Leonard, 1972
	Period Ten	Period Eleven	Fuller, 1971
	Civilized Survival Society	Civilized Identity Society	Glasser, 1972
	Personalistic Existence (F-S Man)	Cognitive Existence (G-T Man)	Graves, 1974
	Scientific Exploitative Stage	Communication-Electronic Stage	Calhoun, 1974
	Humanic Age	Postindividual/Leptoid Age	Heard, 1964
	Childhood of Humanity	Manhood of Humanity	Korzybski, 1921
	Relating Stage of Human Development	Postulating Stage of Human Development	Bois, 1972
	Epoch A	Epoch B	Salk, 1973
	Traditional American Ideology	New American Ideology	Lodge, 1975
	Consciousness II	Consciousness III	Reich, 1970
	Industrial Civilization	Scientific-Planetary Civilization	Thompson, 1971
	Social Organization	Cultural Organization	Jantsch, 1974
	Secondary Civilization	A Third Civilization	Rodnick, 1974
	Industrial Powers/Socialist States	Universal Civilization	Ribiero, 1968
	Machine Age	Power Age	Polakov, 1933
	Industrial Society	Power Age	Nearing, 1961
	Mechanical Age	Electric Age	McLuhan, 1964
	Third Revolution (print)	Fourth Revolution (electronic)	Asimov, 1970
	Western Democracy	Cybernetic Culture	Hughes, 1970
	Level Five	Level Six, The Cybercultural Era	Perk, 1966
	Scientific Revolution	Cybernetic Revolution	Seaborg, 1967
	Industrial Age	Paleocybernetic Age	Youngblood, 1970
	Utilitarian Economy	Creative Economy	Fromer, 1971
	Replicative Societies	Age of Social Mutualism	Land, 1973
	Industrial Era	Communications Era	Theobald, 1972
	First Industrial Revolution	Second Industrial Revolution	Kosmetsky, 1970
	Civilizations utilizing single planet energy source	Civilizations utilizing solar system energy source	Berry, 1974

*Ibid.

IN SEARCH OF SOCIETAL TRENDS

Consideration of overall patterns of societal change must be complemented by information about specific, component trends. Examining either of these to the exclusion of the other will lead to an unnecessarily limited perspective on the future. Societal patterns reflect the contours of change. The components--such as demographic, economic, and employment shifts--must be defined and understood, as well, if thoughtful and finely-tuned judgments about future directions are to be made.

An overemphasis on patterns of change disregards subtle changes in important, specific factors. Conversely, an overdependence on components can lead to a mechanistic view of the future extrapolated from present statistics. In planning for Pennsylvania's postsecondary education future, it is important to balance both levels of inquiry and perception.

The section which follows highlights nine components of societal change which are likely to impact the future of postsecondary education in Pennsylvania. These factors were chosen for a combination of reasons. Some represent key indicators of change identified by the Institute in monitoring overall societal developments; others have particular relevance to postsecondary education or were identified specifically in the course of the present study. The components of change described here include age distribution, geographic shifts, household and family variables, income levels and distribution, labor force participation, the occupational mix, unemployment and underemployment, allocation of tax revenues, and three examples of qualitative factors: personal stress, organizational complexity, and public attitudes toward technology.

AGE DISTRIBUTION: AN ADULT SOCIETY

The U.S. population is likely to grow at a slow, but steady rate of slightly less than 1 percent annually through the year 2000. Thus, by 1990, Americans will number 247 million, or about 15 percent more than

today. As Table 1 reveals, it is the working-age segment of the population--the 18- to 64-year-olds--that will grow the most. By 1990, the number of people aged 18-64 is expected to increase by 24 million, compared to a 7 million increase in the elderly population and virtually no change in the number of people under 18.

TABLE 1. U.S. POPULATION: 1975-2000*
(Millions)

<u>Age</u>	<u>1975</u>	<u>1985</u>	<u>1990</u>	<u>2000</u>
0-4	16	20	20	18
5-17	50	45	49	53
18-64	125	142	149	160
65+	22	27	29	31
TOTAL	213	234	247	262
Median Age (Years)	28.8	31.1	32.3	34.8

The United States, then, seems destined to become an increasingly adult-oriented society. While the under-18 population constituted 35.5 percent of the total population in 1960, it will shrink to 28 percent of the total by the 1990s. The current trends suggest that the median age of the population will rise from 29 years to 35 years by the end of the century.

*"Projections of the Population of the United States: 1975-2050," *Current Population Reports*, U.S. Bureau of the Census, Series P-25, No. 601. These projections are based on the following assumptions: (1) fertility rates will continue at the replacement level, with 2.1 children born to each woman (assuming a 1.7 fertility rate would result in a median age of 37 by the year 2000); (2) there will be no significant increase in life expectancy; and (3) net immigration will continue at present rates, approximately 400,000 annually.

The population of Pennsylvania, like that of the United States as a whole, is likely to grow at a very slow rate (see Table 2). Through 1985, in fact, the growth rate for Pennsylvania may be among the lowest in the country (see Appendix B, Table 1).

TABLE 2. PENNSYLVANIA POPULATION: 1975-2000*
(Millions)

Age	1975	1985	1990	2000
0-4	.8	.8	.8	.8
5-19	3.1	2.4	2.3	2.3
20-64	6.6	7.1	7.2	7.4
65+	1.5	1.8	1.9	1.9
TOTAL	12.0	12.1	12.2	12.4
Median Age (Years)	31.3	33.6	35.0	38.6

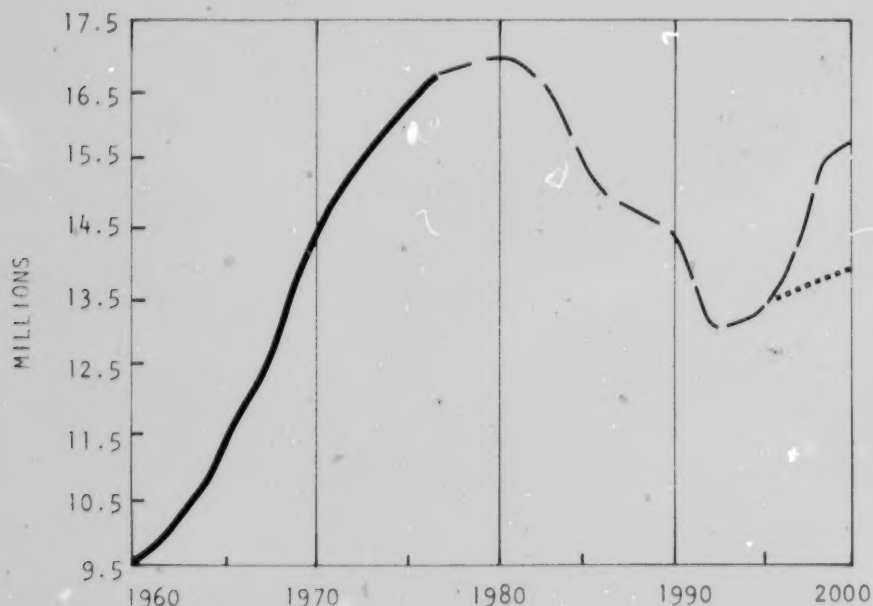
The working segment of the Pennsylvania population--persons 20-64--will increase by 806,000, while the elderly cohort will grow by 432,000. The number of people under 19 will decrease by 805,000. This group, which constituted 29 percent of the total state population in 1960, will decrease to 25 percent by the end of the next decade. It appears that the median age of the population will rise from 31.3 in 1975 to 38.6 by the year 2000.

*Population Projections for Pennsylvania and Counties, 1970-2000, Pennsylvania Department of Education, Bureau of Information Systems, Harrisburg, Pennsylvania, 1975. See Appendix B, Figure 1, for charts illustrating projected changes in each category. Again, of course, these projections are very sensitive to changes in fertility rates or other key variables. The fertility rate assumed in this study is 1.8. Appendix B, Figure 2 illustrates historical and projected fluctuations in Pennsylvania birth rates. For the United States, the 18- to 64-year-old category represents the group likely to be in the labor force; for Pennsylvania, the counterpart category is made up of 20- to 64-year-olds (with those 19 and under as youth labor).

A Declining College Segment

With the rise of the median age, the number of 18- to 21-year-olds is declining. Traditionally, college students have come from this pool, which grew from 9.5 million in 1960 to 14.8 million in 1970 and will peak at about 17 million near the end of this decade (see Figure 1). In the

FIGURE 1. NUMBER OF 18-TO-21-YEAR-OLDS, 1960-2000*

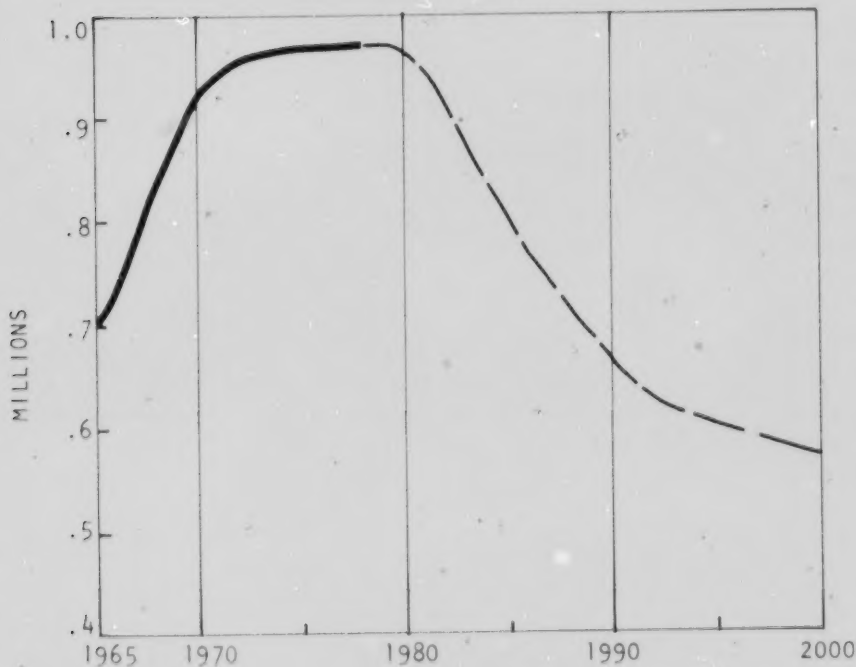


*Derived from "Projections of the Population of the United States: 1975-2050," *Current Population Reports*, U.S. Bureau of the Census, Series P-25, No. 601, Table 8; historical data from *Statistical Abstract of the United States*, Table 3, 1975. The projections assume that future birth-rates will hover around the replacement level (i.e., 2.1 children per woman) and that women will have children during their early to mid-20s (projection represented by broken line). The dotted line assumes that females who are products of the "baby boom" will have fewer children later in their lives and that many may choose not to bear children.

coming decade, however, it will contract by about 2-1/2 million, rising again as we approach 2000.

The pattern for 18- to 21-year-olds in Pennsylvania runs parallel with that of the nation as a whole. This group, the traditional college age segment, grew from 697,600 in 1960 to 921,254 in 1970 and is expected to peak at about 990,000 in 1977 (see Figure 2).

FIGURE 2. NUMBER OF 18- TO 21-YEAR-OLDS
IN PENNSYLVANIA, 1965-2000*

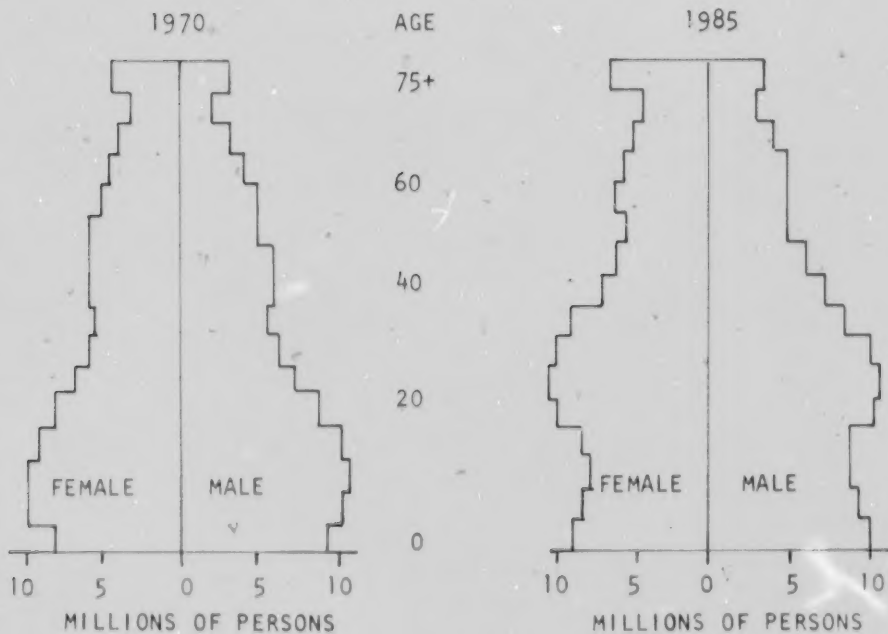


*Derived from *Enrollment Picture to 1980*, Pennsylvania Department of Education, Research Studies and Report Series, No. 10, 1962; and *Selected Demographic and Enrollment Data Projections for Pennsylvania*, Pennsylvania Department of Education, Bureau of Information Systems, October 1973. As in Figure 1, the number of 18-to-21-year-olds from 1990 to 2000 is dependent on the degree to which "baby boom" females postpone having children. In this figure, the lower birthrate is assumed.

The Changing Number and Nature of Adults

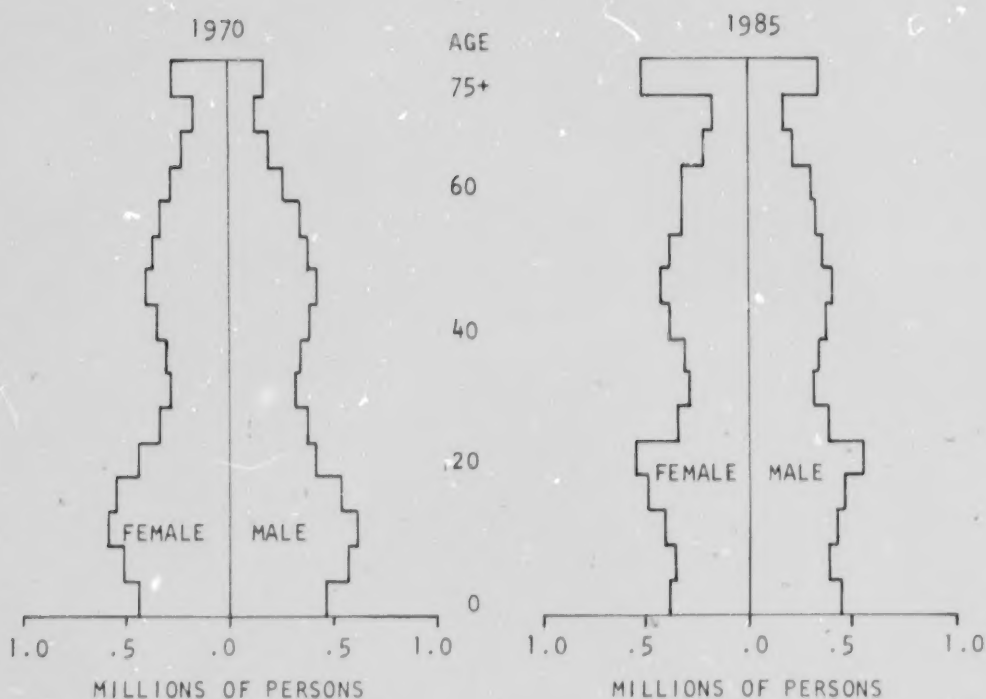
By far, the predominant age group in the United States in 1990 will be adults 25 to 45 years of age. These are the people born between 1945 and 1965--the so-called baby boom generation--who earlier tipped the population scales in favor of youth (see Figure 3). The age distribution "bulge" in Pennsylvania will show a similar upward shift in the years to come (see Figure 4).

FIGURE 3. THE CHANGING UNITED STATES
AGE DISTRIBUTION*



*"Projections of the Population of the United States: 1975-2050,"
Current Population Reports, U.S. Bureau of the Census, Series P-25, No. 601.

FIGURE 4. THE CHANGING AGE DISTRIBUTION
IN PENNSYLVANIA*



Due to sheer numbers, the baby boom generation, which far exceeds any other 20-year age cohort in the population, can be expected to exert a disproportionate effect on society. Whether their views will be unified as a cohort, of course, remains to be seen.

The kind of effect exerted by this age group will be intimately linked to the problems and concerns of young adults. Adulthood is frequently viewed as a state of mind that people reach after they are 21. The nature

*Derived from John Senier, *Population Projections for Pennsylvania and Counties 1970-2000*, Pennsylvania Department of Education, September 1975; and *Detailed Characteristics for Pennsylvania*, U.S. Bureau of the Census, 1970.

of this state of mind has, however, escaped precise analysis. Even developmental psychology has done a more precise job of analyzing the pre-21 than the post-21 phases. Furthermore, the nature of the life cycle appears to be changing. A comparison of the emerging life cycle with the traditional one shows a general movement away from monolithic experiences which cover long periods of time. The traditional vision of *formal education, lifelong careers, and everlasting family structures* is changing. In its place are *recurring periods or episodes when individuals may experience several different careers, multiple educational environments, varied belief systems, and significantly different marriages--though perhaps with the same person.** The kind of personal questions which adults will now be asking are more like those traditionally asked by adolescents. These are basic questions about life; they focus on refining a view of the world. Introspective periods have always occurred during adulthood, particularly with regard to death. But the new kind of questioning will be more continuous and particularly complex. Thus, even if adulthood appeared stable in the past, it will be clearly evolutionary during the coming years.

GEOGRAPHIC DISTRIBUTION:

AWAY FROM CITIES, TOWARD THE SUN

Historically, U.S. residential patterns have been characterized by a continuous growth in the proportion of the population living in metropolitan areas. However, this trend toward increasing urbanization appears to have halted, and for the remainder of the century, the population distribution may stabilize at roughly the present levels (see Figure 5).

During the past five years, central cities have not only stopped growing, but the largest have actually lost population. And while the surrounding suburban areas have continued to grow, their rate of growth has slowed

*As two persons each experience rapid changes in their own lives, it becomes increasingly difficult to sustain a static marriage relationship. Thus, two people who marry may actually become significantly different people and still choose to remain married, probably under some redefined conditions based on the changes in each of them.

FIGURE 5. PERCENT DISTRIBUTION OF POPULATION
BY METROPOLITAN AND NONMETROPOLITAN
RESIDENCE, 1950-1974*

NONMETROPOLITAN AREAS	37%	33%	31%	32%
SUBURBAN	27	33	38	39
CENTRAL CITY	36	34	31	29
	1950	1960	1970	1976

since the decade of the '60s. *Nonmetropolitan* areas, however, are growing almost twice as fast as they were in the 1960s. This does not mean everyone is going "back to nature," but it does raise questions about the future of cities and the rural areas to which people are moving. The city dwellers will leave some problems behind, but they will take others along with them. It will be important to consider the attitudes and needs of the new rurals, and of those left behind in the cities.

The recent growth of nonmetropolitan areas has been accompanied by changing patterns of interstate migration. In recent years, 17 predominantly rural states which historically experienced a net out-migration of their population have shifted to net in-migration. These newly popular

*Derived from William Gorham and Nathan Glazer, eds., *The Urban Predicament*, The Urban Institute, Washington, DC, 1976; and "Population Characteristics," *Current Population Reports*, U.S. Bureau of the Census, Series P-20, No. 307, Table 19, April 1977, p. 26.

interest in rural or semirural living has strong implications for population distribution within the state. As Figure 7 illustrates, 17 counties, primarily in the northeastern, southwestern, and west central parts of the state have gone from declining populations in the early 1960s to increasing populations in the mid-1970s. While 28 counties had continuous net out-migration from 1960 to 1975, 19 counties had "turnarounds": after losing residents for 10 years, they have been gaining population steadily since 1970.* These counties, while dispersed throughout the state, have at least one thing in common: all (excluding two) are rural.

This shift has had a notable impact on Pennsylvania cities. Figure 8 displays the population trends for the 14 largest cities in the state from 1950 to 1973. Only three central cities did not show a net population loss during this period (Allentown, Bethlehem, and Erie). For the years 1970 to 1973, 61 percent of all Pennsylvania cities of 10,000 residents or more declined in population.

Pittsburgh's population, which reached its peak in 1950 (with a population of 676,806), was estimated to be down to 479,206 in 1973 (as computed for revenue sharing). Although its population has not declined as much as Pittsburgh, Philadelphia's loss of population is significant. The peak level recorded in 1960 of 2,071,605 had fallen to 1,861,719 in 1973.**

Racial Migration Patterns

By subdividing data on overall migration trends, the patterns of movement for blacks and whites can be compared.*** The flow of blacks from the South to the Northeast and North Central regions has stopped. Black in-migration to these areas, which fueled the growth of cities after World War II, has been reversed, as shown in Figure 9.

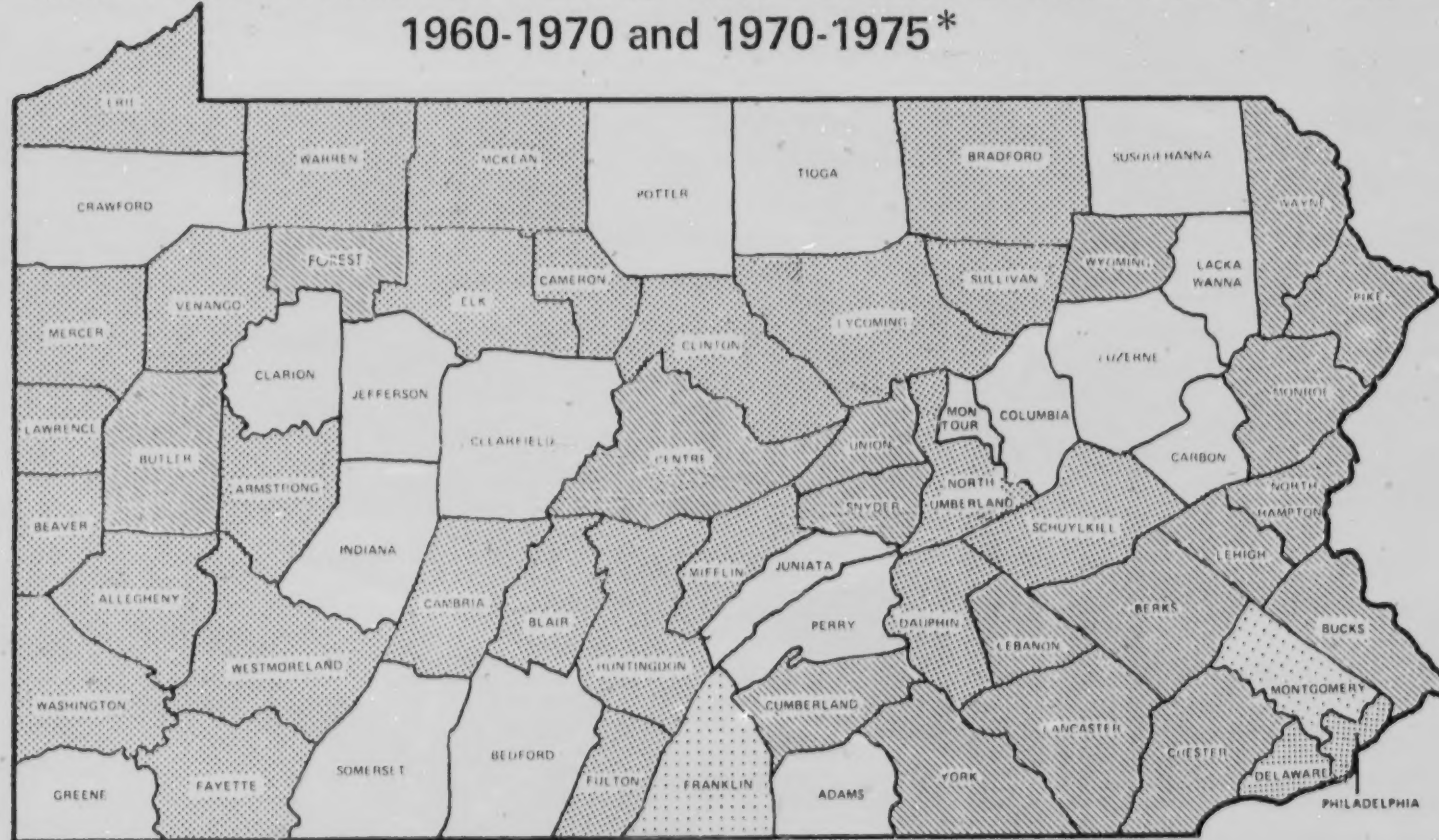
*See Gordon F. De Jong, *Population Change and the Shape of Pennsylvania's Future*, The Benjamin Franklin Symposium, Harrisburg, Pennsylvania, January 17, 1977, p. 8.

**John P. Robin, *The Political Economy of Pennsylvania: Old Phrasing, New Thinking*, The Benjamin Franklin Symposium, January 18, 1977, p. 9.

***See Appendix B, Figures 3 and 4 for maps of black and white out-migration and in-migration during the period 1960 to 1970.

FIGURE 7

NET MIGRATION PATTERNS FOR PENNSYLVANIA COUNTIES 1960-1970 and 1970-1975*



1960-1970

1970-1975

+

+

-

-

+

-

-

+



CONTINUOUS NET IN MIGRATION



CONTINUOUS NET OUT MIGRATION



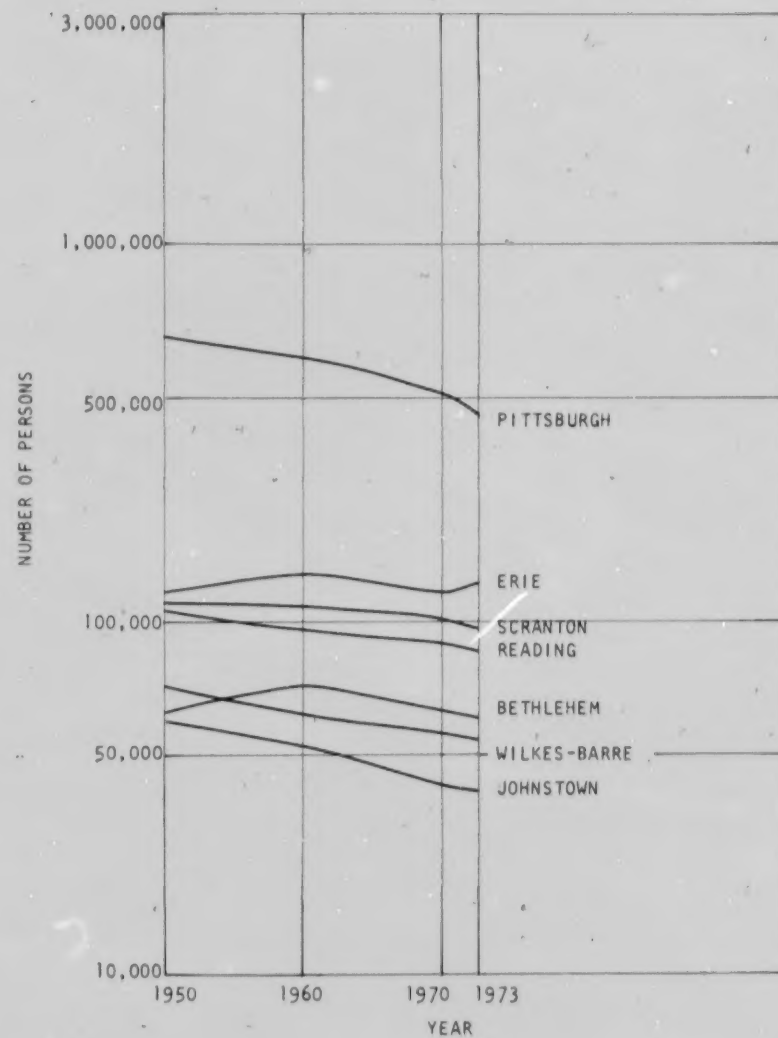
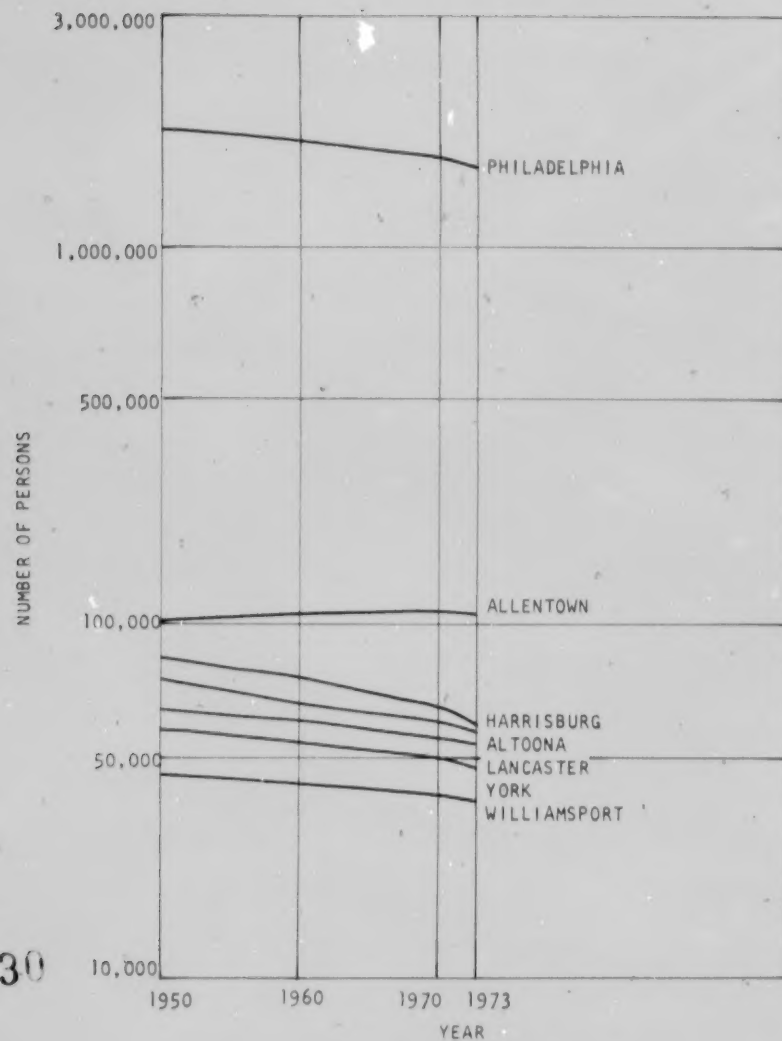
NET IN CHANGED TO NET OUT MIGRATION



NET OUT CHANGED TO NET IN MIGRATION

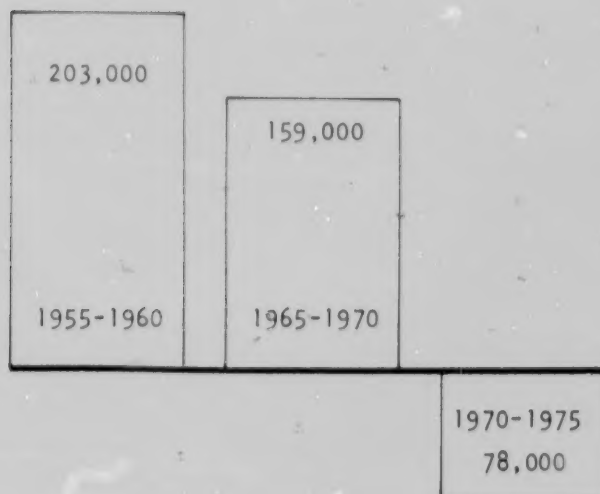
*Reprinted from De Jong, op. cit.

FIGURE 8. CENTRAL CITY POPULATION TRENDS,
14 LARGEST PENNSYLVANIA CITIES: 1950-1973*



*Reprinted from De Jong, op. cit., based on U.S. census data.

FIGURE 9. NET BLACK MIGRATION FROM SOUTH TO NORTHEAST
AND NORTH CENTRAL REGIONS, 1955-1975*

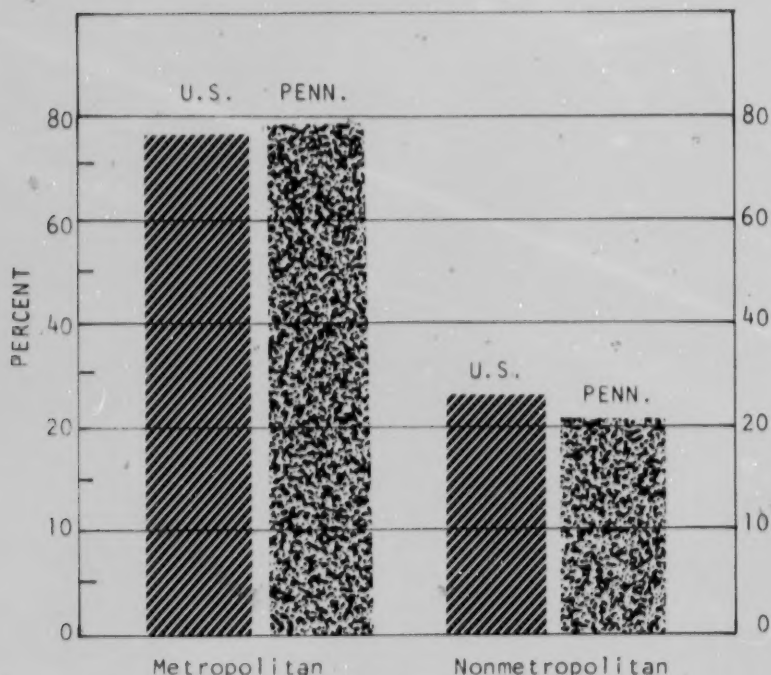


Geographically Dispersed Students

The direct effect of the shift from urban to rural living on participation in postsecondary education is difficult to assess. Figure 10 shows college participation rates for 1974, broken down by metropolitan and non-metropolitan enrollments for Pennsylvania and the United States as a whole. Clearly, those in metropolitan areas have been more active participants than their rural or semirural counterparts. Based only on this information, one might conclude that the current shift toward nonmetropolitan areas will mean lower overall participation rates for postsecondary education. However, the new "rural" residents are likely to be more attuned to the use of educational resources than their rural neighbors have been. If postsecondary institutions can be responsive to the needs of this new constituency, these enrollment patterns might be transformed.

*Gorham and Glazer, op. cit.

FIGURE 10. COMPARISON OF COLLEGE ENROLLMENT RATES IN METROPOLITAN AND NONMETROPOLITAN AREAS: 1975*

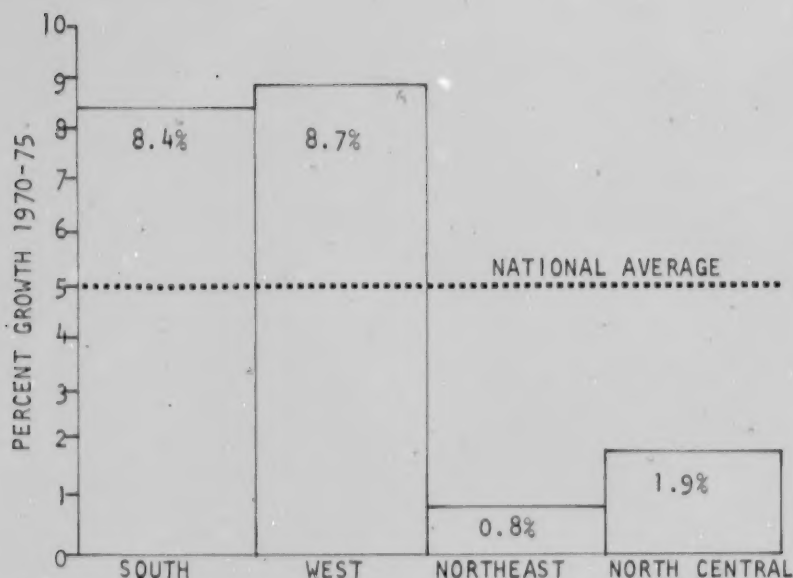


A Move toward the Sun: Will It Continue?

One result of the changing patterns of urban/rural migration has been to accelerate the shift of population from the industrialized Northeastern and North Central states to the Southern and Western regions of the United States (see Figure 11). The Northern tier of long-industrialized states,

*Derived from "School Enrollment--Social and Economic Characteristics of Students, October 1975," *Current Population Reports*, U.S. Bureau of the Census, Series P-20, No. 303, December 1976; and *Enrollments in Institutions of Higher Education by County, Fall, 1972-1976*, Pennsylvania Department of Education, Bureau of Information Systems, March 1977 (uses U.S. Bureau of the Census labor market divisions). The information was not readily available for Pennsylvania and was aggregated by the Institute for the Future.

FIGURE 11. REGIONAL DIFFERENCES IN U.S. POPULATION GROWTH, 1970-1975*



stretching from the Atlantic to the Mississippi River, previously supported the majority of the U.S. population. But the latest figures indicate that fully half of the population now lives outside the Northern industrial tier. And since all but one (Maine) of the fastest growing states are located in the South and West, these sections of the country should overtake the older settled areas of the North in the near future.**

As the balance of population shifts from the Northeast to the sunbelt states, so may the balance of economic and political power.*** The decrease

*"Estimates of the Population of States with Components of Change: 1970 to 1975," *Current Population Reports*, U.S. Bureau of the Census, Series P-25, No. 640, November 1976.

**Appendix B, Figure 5 illustrates the dominance of the South and Southwest in regional comparisons of population, income, and manufacturing employment growth.

***A provocative discussion of this thesis can be found in Kirkpatrick Sale, *Power Shift: The Rise of the Southern Rim and Its Challenge to the Eastern Establishment*, New York: Random House, 1975.

in the number of Pennsylvania delegates to the House of Representatives illustrates this transition. When the House fixed its membership at the constant level of 435 in 1910, Pennsylvania had 36 representatives. As a result of demographic changes (population decline), the number of Pennsylvanians in the House has decreased steadily: from 34 in 1934 to 33 in 1940 to 30 in 1950. After the 1960 census, the total was 27, and it became 25 after 1970 apportionment. By 1980, the state is expected to lose two or three additional seats in the House.* As Figure 12 shows, employment opportunities have gradually declined in the Northeast and North Central regions; and the new sunbelt citizens may grow increasingly reluctant to subsidize their brethren in the North.

FIGURE 12. PERCENT DISTRIBUTION OF NONAGRICULTURAL EMPLOYMENT BY REGION, 1949-1974*

NORTHEAST	31.9	29.1	26.5	24.9
NORTH CENTRAL	31.0	29.5	28.5	28.0
SOUTH	24.7	26.5	28.4	29.4
WEST	12.4	14.9	16.6	17.7
	1949	1959	1969	1974

*John Robin, op. cit., p. 12.

**Gorham and Glazer, op. cit.

There are also indirect pressures on the "frostbelt" states, especially in relation to higher education. For instance, *The Chronicle of Higher Education** reported recently that a coalition of governors from the Northeast has charged that the GI Bill is discriminatory because it pays the same flat fee to cover educational expenses--no matter where the student lives. Tuition is higher in the frostbelt than in the warmer states, so a far smaller proportion of potential GI Bill students attend college in the Northeast. In Pennsylvania, less than 20 percent of the veterans eligible for GI benefits actually attend college (this is the third lowest state percentage in the country). In Arizona, over 50 percent attend. Such pressures on the colder states underscore the attractiveness of life in the sun.

It is not clear, of course, that the popularity of the sunbelt will continue with the same vigor as in the past few years. The current water shortage, for instance, could dry up many sunbelt cities and drive people away from others. The drought is not a trivial problem and could easily be an enduring crisis in the West. In the long run, the problems that many people seek to leave behind in the Northeast will face them in their new homes. The consequences of fast growth will create environmental and social pressures that governments may not be prepared to handle.

HOUSEHOLDS AND FAMILIES:

SMALLER, LESS TRADITIONAL

Family and work typically form the center of attention during adulthood, and these two institutions seem particularly vulnerable to change as the number of young adults swells. More people will be living alone, and the size of families will decline. In fact, it is likely that 60 percent of all households will consist of only one or two persons by the year 1985 (see Table 3). Thus, only about one-third of the population will be living in families of three or more persons.

*"GI Bill Said to Favor Veterans in South, West," *Chronicle of Higher Education*, December 12, 1976, p. 5.

TABLE 3. PERCENT DISTRIBUTION OF U.S.
POPULATION BY HOUSEHOLD SIZE*

	<u>1 Person</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5 or More</u>
1960	13.1	27.8	18.9	17.6	22.6
1973	18.5	30.2	17.3	15.7	18.3
1985	24.0	34.5	16.5	13.0	12.0

Pennsylvania households are likely to follow the national trend. As Table 4 indicates, the trend in the state is toward smaller households, with the largest increases occurring in the one-person household category (the 1980 census, including the next state-by-state breakdowns, should offer reinforcement of the patterns that have been developing).

TABLE 4. PERCENT DISTRIBUTION OF PENNSYLVANIA
POPULATION BY HOUSEHOLD SIZE**

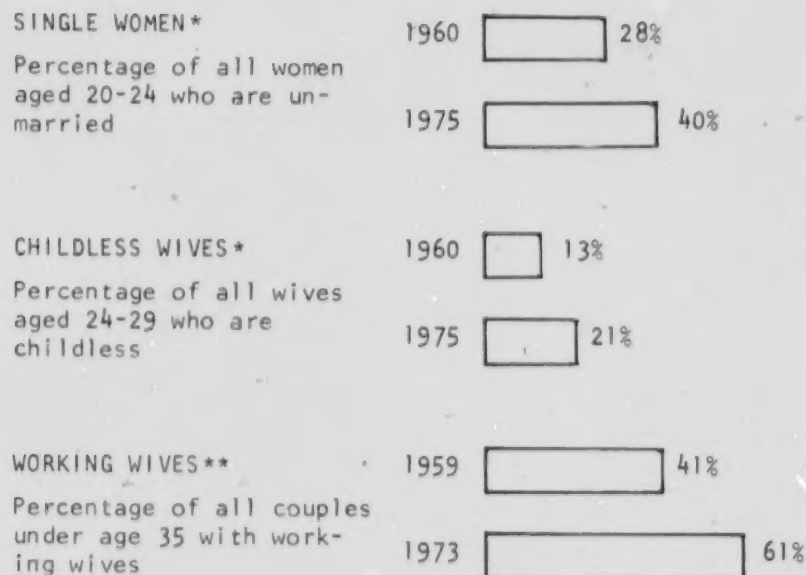
	<u>1 Person</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5 or More</u>
1960	20.2	25.1	18.2	16.6	19.9
1970	25.1	26.2	16.1	14.2	18.4

At the same time that households are becoming smaller, changing sex roles will continue to transform the traditional nuclear family (see Figure 13).

*Derived from "Household Money Income in 1960(73); Selected Social and Economic Characteristics of Households," *Current Population Reports*, U.S. Bureau of the Census; and Institute for the Future estimates.

**Derived from *Detailed Characteristics for Pennsylvania*, U.S. Bureau of the Census, Tables 135 and 141, 1960 edition; and Tables 198 and 200, 1970 edition.

FIGURE 13. CHANGING ROLES OF WOMEN



The definitions of "husband" and "wife" are in flux, particularly regarding the role of women. It is not clear whether the recent increase in single women and childless wives indicates that younger women are merely postponing

**Population Profile of the United States: 1975," *Current Population Reports*, U.S. Bureau of the Census, Series P-20, No. 292, March 1976. These figures are almost entirely determined by the behavior of the white majority. Black women are more likely to be single (53 percent of 20- to 24-year-old black women were unmarried in 1975). Among black wives aged 24 to 29, the proportion who are childless has remained relatively constant over a 15-year period, hovering around 15 percent.

**Statistical Abstract of the United States, Table 564, 1975. While both black and white couples registered an increase in the proportion of dual-earner families, the percentage of black couples with working wives is much higher than the percentage of white couples. In 1959, half of all black couples under 35 had working wives; by 1973, the proportion was 68 percent.

marriage and motherhood or rejecting these roles. But whether married or not, most women will be employed outside the home. Already, working wives are found among 60 percent of couples under 35. And the number of working women should continue to climb. If present trends continue, 75 percent of all women aged 20 to 54 will be in the labor force by 1990.

Pennsylvania women mirror national trends, with more women remaining single (or postponing marriage), greater numbers electing not to have children, and increasing numbers of married women seeking employment.*

As we move toward fewer sex role distinctions, one question which remains unanswered is whether women will simply adopt traditional male values--aggressiveness and the need for achievement--or whether a new adult role will emerge that combines aspects of both roles. Should we anticipate a future society in which no adults perform the nurturant role formerly assumed largely by women?

Another unanswered question involves the changing nature of male roles, occurring at least partially in response to changes in female roles. Men are now faced with basic challenges to the male "mystique" and the privileges which have been routinely associated with being male. While the women's movement is opening doors for females, it is closing them for males who may be less or equally qualified. Under a slow-growth economy, a certain number of opportunities exist; and when one group gains, another must lose. The result is a sense of disequilibrium among men which is being expressed publicly by a series of recent books on "men's liberation,"** a national

*In 1960, 35.5 percent of all women in Pennsylvania were single. In 1970, the rate increased to 43.6 percent. After a slight increase in 1969-70, inconsistent with the established pattern, the fertility rate in Pennsylvania has continued to decline, most significantly in the 20-to-29 age group. See John Senior, op. cit., pp. 4-5; and *Detailed Characteristics for Pennsylvania*, U.S. Bureau of the Census, 1970.

**See, for example, Jack Nichols, *Men's Liberation*, Penguin Books, 1975; Herb Goldberg, *The Hazards of Being Male*, Nash, 1976; John W. Petras, *Sex: Male/Gender: Masculine*, Alfred, 1975; Hendrick M. Ruitenbeck, *The Male Myth*, Dell Publishing Co., Inc., 1967; Marc Feigen Fastean, *The Male Machine*, McGraw-Hill Book Company, 1974; Joseph H. Pleck and Jack Sawyer, *Men and Masculinity*, Prentice-Hall, Inc., 1974; Ross Firestone, ed., *A Book of Men*, Stonehill, 1975; Deborah S. David and Robert Brannon, eds., *The Forty-Nine Percent Majority: The Male Sex Role*, Addison-Wesley Publishing Company, 1976; and Warren Farrell, *The Liberated Man*, Bantam, 1975.

newspaper devoted to men's issues,* two National Men's Conferences, and a host of local consciousness-raising groups. Professor Arthur Shostak of Drexel University sees positive opportunities in the changes underway:

What then, is the major significance of the Women's Movement for American men? Nothing less than the extraordinary unfreezing at this time of the entire masculine mystique scene, for females and males alike, and the opening thereby of new possibilities for all to finally come in out of the cold.**

The essential question is not whether men will be affected by shifts in the status of women, but in what ways will they change and to what degree.

Changing lifestyles and sex roles will also impact today's child, who will be of traditional college age by 1990. Children will grow up in the next decade with fewer siblings; the average family size will hover around two children. However, the tripling of preschool enrollments in the last decade (see Figure 14) indicates that children will also function outside the family circle at a much earlier age. In addition, children will most likely have to adapt to changing parent figures. In 1975, 17 percent of all children lived in single-parent families and estimates of the number of children living with stepparents range as high as 30 percent. In the future, the proportion of children living with both their own parents continuously until age 18 could fall below 50 percent.

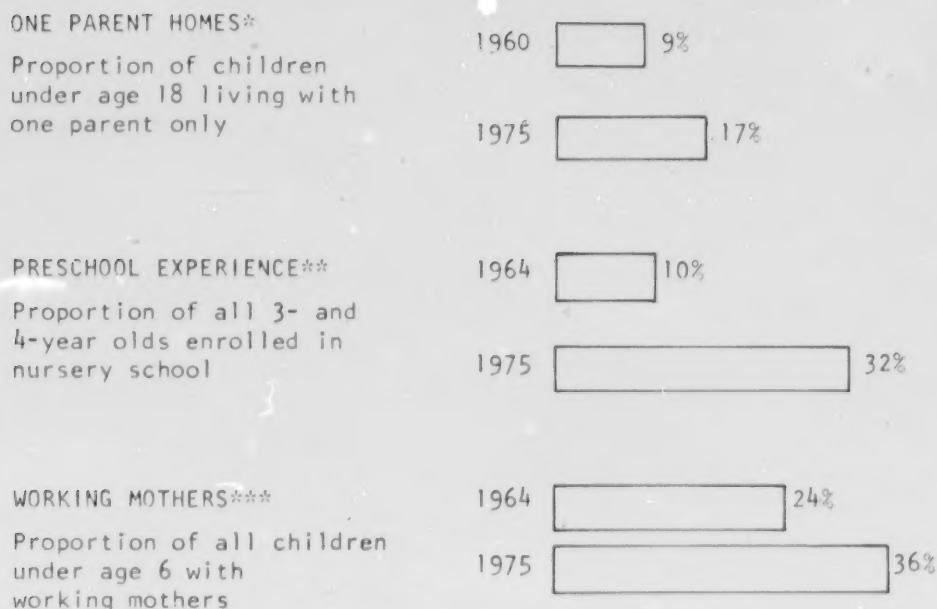
In Pennsylvania, children's lifestyles will be much the same as those of children in any state. Many children will live with either parent rather than both.***

*The newspaper, *Changing Men*, is available from the Men's Resource Center, 3534 S.E. Main, Portland, OR 97214.

**Arthur B. Shostak, "The Women's Liberation Movement and Its Various Impacts on American Men," *Journal of Sociology and Social Welfare*, Spring 1977, forthcoming.

***According to personnel in the Pennsylvania Department of Education, the state does not now collect information on "prekindergarten children" (or by age groups); therefore, data comparable to U.S. figures for very young children are not available. It was suggested by the Pennsylvania Department of Education that inferences about the status of children in the state might be drawn from statistics on one-parent households and working mothers.

FIGURE 14. CHANGING ENVIRONMENT OF CHILDREN



*Families, U.S. Bureau of the Census, 1960 Census of the Population, Subject Report PC(2)-4A, Table 6; and "Marital Status and Living Arrangements: March 1975," *Current Population Reports*, U.S. Bureau of the Census, Series P-20, No. 287, Table 4. In 1975, 39 percent of all nonwhite children lived in single-parent families, compared to 13 percent of white children.

**"School Enrollment--Social and Economic Characteristics of Students, October 1974," *Current Population Reports*, U.S. Bureau of the Census, Series P-20, No. 286, November 1975; and "School Enrollment--Social and Economic Characteristics of Students, October 1975 (Advance Report)," *Current Population Reports*, U.S. Bureau of the Census, Series P-20, No. 294, June 1976. Preschool enrollments show little variations by race and sex.

***Children of Working Mothers, March 1975, U.S. Department of Labor, Bureau of Labor Statistics, Special Labor Force Report, issued August 1975. 48 percent of all black children under 6 years old have a mother in the labor force, compared to 34 percent of white children. See also *U.S. Working Women, A Chartbook*, U.S. Department of Labor, Bureau of Labor Statistics, Bulletin 1880, 1975, p. 26.

Children depend--and the next 10 years likely will not be very dependable. Movements for increased legal rights for children may eventually help define their role and rights in society, but the initial effect will likely be even less role stability. The old rules will be obsolete and the new ones still evolving. Thus, while the rest of American society will be reevaluating and reassessing, children will still be seeking a lot of basic personal security. Perhaps some youthful insecurity will help prepare children for an unstable world, but such a view seems optimistic beyond existing social theory. The next 10 years will be hard on children.

INCOME LEVELS AND DISTRIBUTION

Various income and labor force issues bear heavily on the structure and effectiveness of educational institutions. Each must be considered in the context of overall U.S. economic health and stability. Over the past 50 years, the growth rate of the American economy has averaged 4.5 percent annually. A slower rate of increase seems probable for the future. (Our best bet is 2.5 to 3.5 percent annual real growth in GNP.) Two major constraints are the declining reserves of nonrenewable resources and the increasing cost of restoring and maintaining minimal environmental equilibrium. A further inhibitor is the probable long-range decline in the proportion of the world's resources controlled by the United States.

For the near future, the economy seems likely to continue to grow, but at a more modest rate than that which characterized the past. In the long term, however, the economy could directly approach a "steady state."* This leveling-off has implications for the growth of family income and the resultant standards of living.

In the United States, the distribution of income has remained nearly the same since the mid-1940s. The poorest fifth of the population receives

*Herman E. Daly, in *Toward a Steady State Economy* (San Francisco: Freeman and Company, 1973), discusses the economic implications of a steady-state society as well as the ecological and moral constraints on unlimited growth.

about 5 percent of the total national income, while the richest fifth corners more than 40 percent of the total (see Table 5). However, despite

TABLE 5. DISTRIBUTION OF FAMILY INCOME*

(Percent)

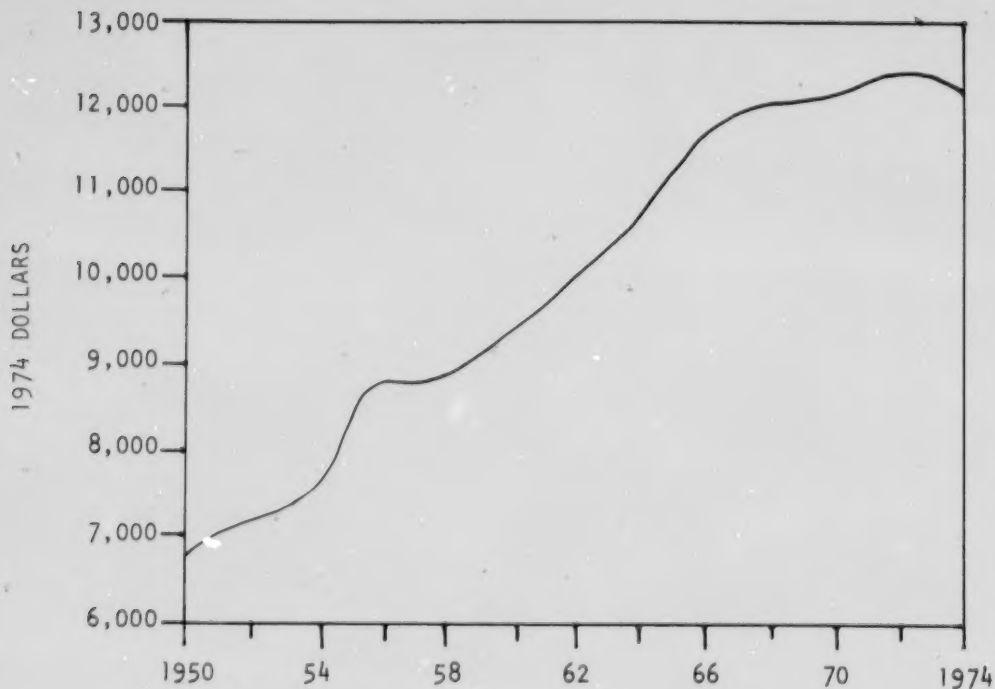
	<u>1947</u>	<u>1960</u>	<u>1970</u>	<u>1975</u>
Lowest Quintile	5.1	4.8	5.4	5.4
2nd Quintile	11.8	12.2	12.2	11.8
3rd Quintile	16.7	17.8	17.6	17.6
4th Quintile	23.2	24.0	23.8	24.1
Highest Quintile	43.3	41.3	40.9	41.1

their disproportionately small share of income, the poor have experienced a rise in their standard of living due to the steady growth of total income. Now, the prospect of limited growth challenges their ability to improve their condition. While family income grew at an average annual rate of 3 percent from 1959, gains have not been forthcoming since 1972 (see Figure 15).

Fluctuations in discretionary income, the amount of money available for spending after all the bills are paid, have a significant impact on the public's ability to support education through tuition and contributions.

*Statistical Abstract of the United States, Table 619, 1974, p. 384, and Statistical Abstract of the United States, Table 651, 1976, p. 406. "Family" as used here refers to a group of two or more persons related by blood, marriage, or adoption, and residing together. The United States lags behind most industrialized market-economy nations in reducing income inequalities. According to a recent survey by the Organization for Economic Cooperation and Development (OECD), only France and Spain record greater inequalities than the United States.

FIGURE 15. GROWTH IN MEDIAN FAMILY INCOME, 1950-1974*

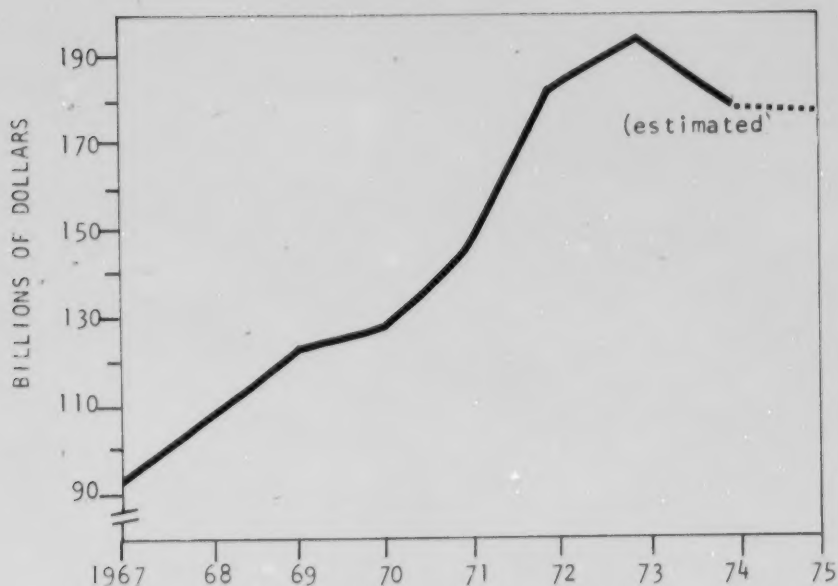


Total discretionary income for all U.S. households peaked in 1972 (see Figure 16). These extra dollars are hardest to come by for households larger than two persons (see *Appendix B, Figures 6 and 7* for more detail).

Income statistics for Pennsylvania reflect the state's economic health relative to other jurisdictions. Through 1980, per capita income in Pennsylvania is expected to grow at a rate of 3.60 percent per year; the next five years will see the annual rate of increase slow to 2.41 percent. Similar growth rates are predicted nationwide (see *Appendix B, Table 2*).

*"Money Income in 1974 of Families and Persons in the United States," *Current Population Reports*, U.S. Bureau of the Census, Series P-60, No. 101, January 1976.

FIGURE 16. TOTAL DISCRETIONARY INCOME*



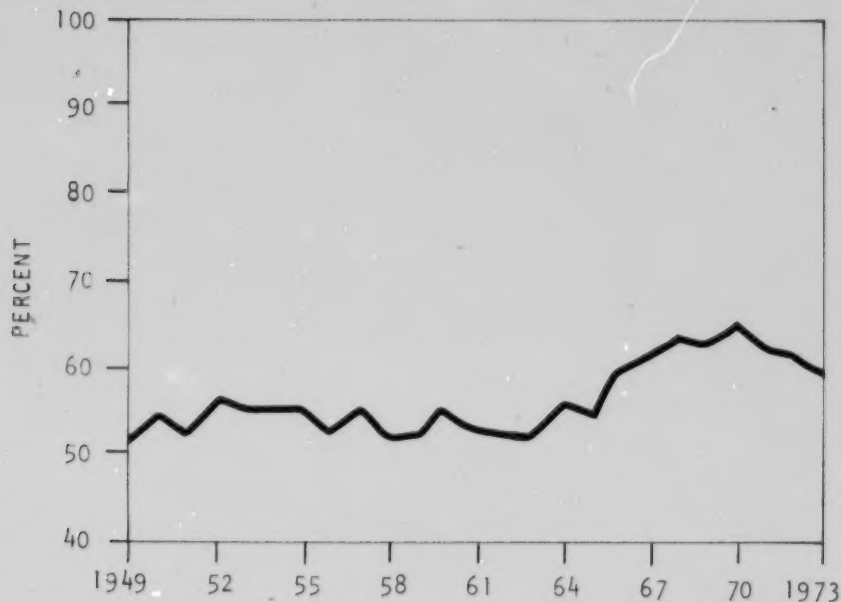
Projected ratios of per capita income to the national average through 1985 show Pennsylvania faring close to the mean (see *Appendix B, Table 3*).

Minorities Continue to Suffer

When economic growth tapers off, minorities lose the most. Figure 17 shows the ratio of black to white family income since 1949. In that year, the median income for a black family was only 54 percent of that for a white family. Furthermore, fluctuations since 1950 are revealing: the gap between black and white families has diminished in periods of economic expansion while it has grown in times of recession. These inequalities may grow even more pronounced as more white wives enter the work force and expand the income of white families. This opportunity for increasing family

*CAP Report, Institute for the Future, February-March 1977.

FIGURE 17. RATIO OF BLACK TO WHITE FAMILY INCOMES*



incomes is often not available to black families: the majority of black wives have always been employed.

While the income gap between the two races is wide, the median incomes of Northeastern black families compare more favorably than those of blacks in other parts of the country (see Table 6).

Comparing statistics within the Northeastern region (Table 7), the median income for black families grew by 74 percent from 1968 to 1974, while the median income for white families increased by 65 percent. However, such comparatively favorable gains have not occurred steadily over time; median incomes for Northeastern black families have been on a see-saw. In 1968, their incomes were 70 percent of median white family incomes;

*Lester Thurow, "The Economic Progress of Minorities," *Challenge*, March/April 1976.

TABLE 6. BLACK FAMILY MEDIAN INCOME AS PERCENT OF WHITE FAMILY MEDIAN INCOME*

<u>Years</u>	<u>All Families</u>	<u>Northeast</u>
1968	60%	70%
1969	61	67
1970	61	71
1971	60	67
1972	59	64
1973	58	59
1974	58	62

TABLE 7. COMPARISON OF BLACK AND WHITE FAMILY MEDIAN INCOME IN THE NORTHEAST: 1968-1974

<u>Year</u>	<u>Black Income (1977 Dollars)</u>	<u>White Income (1977 Dollars)</u>	<u>Black Income as Percent of White Income</u>
1968	\$6,461	\$ 9,320	70%
1969	6,911	10,265	67
1970	7,774	10,939	71
1971	7,601	11,291	67
1972	7,816	12,307	64
1973	7,762	13,230	59
1974	8,788	14,164	62

*"Money Income in 1974 of Families and Persons in the United States," *Current Population Reports*, U.S. Bureau of the Census, Series P-60, No. 101, Table 16, January 1976, p. 27.

and with the exception of 1970, the gap has remained fairly stable. Following the national pattern, the space between incomes for the two races in the Northeast rose to its highest level in 1973, reinforcing the hypothesis that income gaps widen in times of economic hardship and shrink in times of growth.*

Unequal Wage Distribution

The distribution of wages and salaries among various income groups is also very uneven, as is shown in Table 8. Here again, minorities fare

TABLE 8. DISTRIBUTION OF PERSONAL
WAGE AND SALARY EARNINGS**

(Percent)

	<u>1948</u>	<u>1973</u>
Lowest Quintile	2.6	1.7
2nd Quintile	8.1	7.8
3rd Quintile	16.6	16.1
4th Quintile	23.4	26.8
Highest Quintile	49.3	47.6

poorly. Since 1955, the average wages of a black man working full-time have risen from 56 percent to 68 percent of the average white wage.*** At this rate, it would take him 75 years to catch up with his white counterpart.

*Numbers derived from "Money Income in 1974 of Families and Persons in the United States," *Current Population Reports*, loc. cit.

**Ibid.

***Ibid.

The picture for women is even more bleak. Black women have obtained virtual parity with white women,* but women as a group have far lower earnings than men--and the gap has worsened in recent years. In 1974, the median wage for women working full-time was only 57 percent of the male median. And education does little to improve this situation. A college education increases one's income relative to those of the same sex and race who do not attend college; however, it does not narrow the gap between sexes and races. Thus, a college-educated woman earns approximately the same as a white male who has only completed elementary school.

TABLE 9. EFFECT OF EDUCATION ON EARNINGS
OF FULL-TIME, YEAR-ROUND CIVILIAN
WORKERS, 25 YEARS AND OLDER**

<u>Educational Attainment</u>	<u>Median Income</u>	
	<u>Women</u>	<u>Men</u>
8 Years Elementary	\$ 5,606	\$ 9,891
4 Years High School	7,150	12,642
4 or More Years College	10,357	17,188
All Educational Levels	7,370	12,786

LABOR FORCE PARTICIPATION

Education has often been viewed as preparation for work. But while such a direct tie between education and work is still assumed in many quarters, it is rapidly becoming a questionable assumption. Myth breakers

*The median earnings of black women who worked year-round, full-time were 92 percent of their white counterparts in 1974. See "Money Income in 1974 of Families and Persons in the United States," op. cit., Table 61.

**"A Statistical Portrait of Women in the U.S.," *Current Population Reports*, U.S. Bureau of the Census, Series P-23, No. 58, 1976.

of both academic and popular fold are making the "case" against college as a valid preparation for work.* There is talk of "overeducation" in many fields, meaning more education than the available work prescribes. The next decade thus appears to be one for rethinking traditional relationships between education and working. Education will certainly retain its own worth in "preparing the whole person," but the effect of this preparation in the world of work may come under increasing scrutiny.**

1990: More Workers

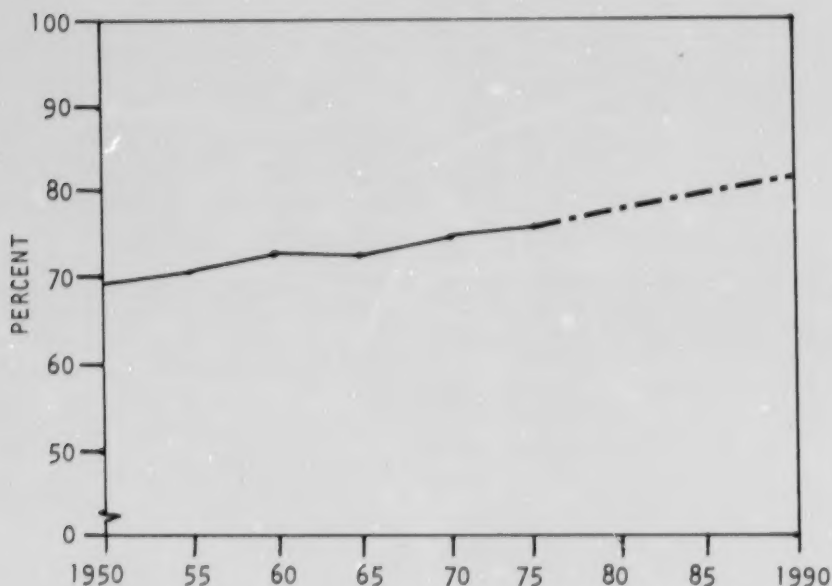
The labor force is commonly defined as all persons 16 or over who are employed or actively seeking work. It includes those working part-time as well as those working full-time, those working for wages or salaries, the self-employed, and even unpaid family workers in small businesses. Finally, it includes the presently unemployed who are seeking a job.

The proportion of the population which participates in the labor force has varied over the past three decades (see Figure 18). In 1947, almost all "able-bodied men" were in the work force. But today, the labor force participation rates of older men are very low, as both law and custom dictate withdrawal from employment by age 65 (see Figure 19). On the other hand, participation rates for women have dramatically increased. Indeed, over half the growth in the labor force during the last 20 years can be attributed to the increased percentage of women workers.

*Representative of these viewpoints are: Caroline Bird, *The Case Against College*, David McKay Company, 1975; Ivar Berg, *Education and Jobs: The Great Training Robbery*, Praeger Publishers, Inc., 1970; and Richard B. Freeman, *The Over-Educated American*, New York: Academic Press, 1976.

**Quite different from those questioning the basic value of postsecondary education are the proponents of a broad interpretation of the returns on educational investment, the "human capital" adherents. Gary Becker, author of *Human Capital* (New York: Columbia University Press, 1964) is perhaps the best known advocate. The "human capitalists" have considered investment in education to be translated into higher productivity and growth of the gross national product, with some returns going to the individual and some to society in general. See also Paul C. Glick and Herman P. Mileer, "Educational Level and Potential Income," *American Sociological Review*, vol. 21, 1956; Giora Hanoch, *Personal Earnings and Investment in Schooling*, Ph.D. dissertation, University of Chicago, 1965; and W. Lee Hansen, "Total and Private Rates of Return on Investment in Schooling," *Journal of Political Economy*, vol. 71, April 1963.

FIGURE 18. THE LABOR FORCE AS A PERCENTAGE OF TOTAL U.S. POPULATION AGED 18 TO 64, 1950-1990*

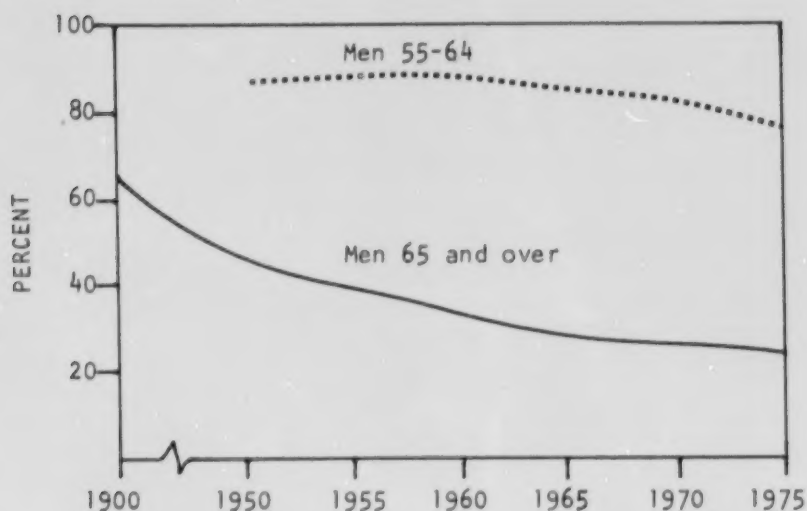


The U.S. Bureau of Labor Statistics (BLS) projects a total work force of 113 million persons in 1990--a work force 20 percent larger than today.** These projections assume: (1) a continuing decline in the proportion of people over 55 who are in the work force, (2) only a modest increase in the participation rates of women, and (3) no significant increase in the participation rates of youth. If the BLS projections underestimate the participation rates of women and youth, the actual size of the labor force

*Derived from *The U.S. Labor Force: Projections to 1990*, U.S. Department of Labor, Bureau of Labor Statistics, Special Labor Force Report No. 156; *Employment and Unemployment during 1975*, U.S. Department of Labor, Bureau of Labor Statistics, Special Labor Force Report No. 185; and *Handbook of Labor Statistics*, U.S. Department of Labor, Bureau of Labor Statistics.

***The U.S. Labor Force: Projections to 1990*.

FIGURE 19. LABOR FORCE PARTICIPATION RATES
OF MEN OVER 55 YEARS OF AGE*



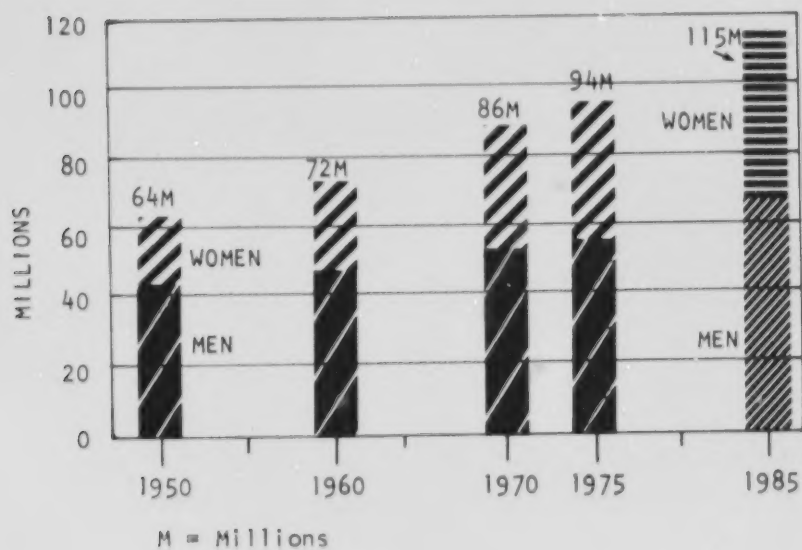
could be as much as nine million higher than projected--or 28 percent larger than the 1975 labor force (see Figure 20).

The size of Pennsylvania's labor force has grown about 16 percent since 1950 (see Figure 21) and is expected to increase by 12 percent by 1990, a significantly lower growth than that of the United States as a whole.** Between 1950 and 1975, the growth of the labor force did not exceed 300,000 per decade; however, the projection for the period 1975 to 1985 shows an increase of approximately 600,000.

**Handbook of Labor Statistics and Employment and Unemployment during 1975*, U.S. Department of Labor, Bureau of Labor Statistics.

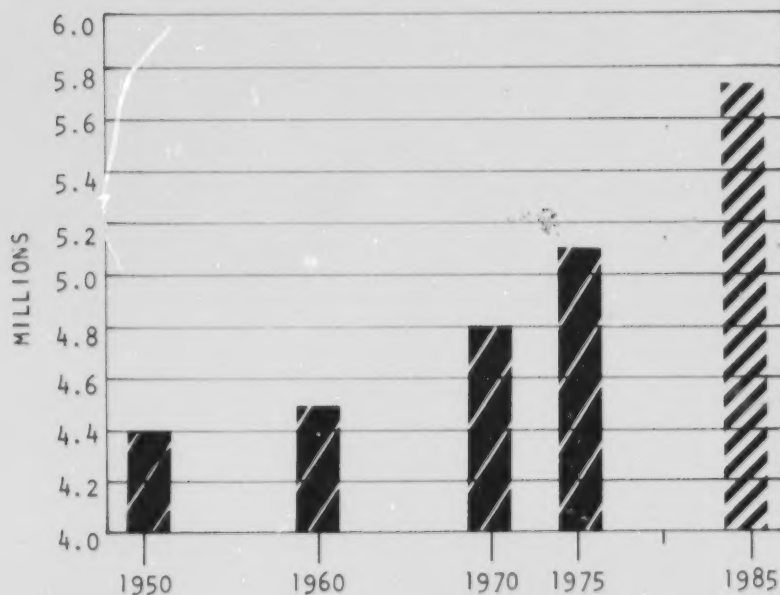
**Derived from projections by the Office of State Planning and Development, Commonwealth of Pennsylvania, Harrisburg, 1977.

FIGURE 20. GROWTH OF THE U.S. LABOR FORCE, 1950-1985*



*Statistical Abstract of the United States, 1975; and Institute for the Future projections.

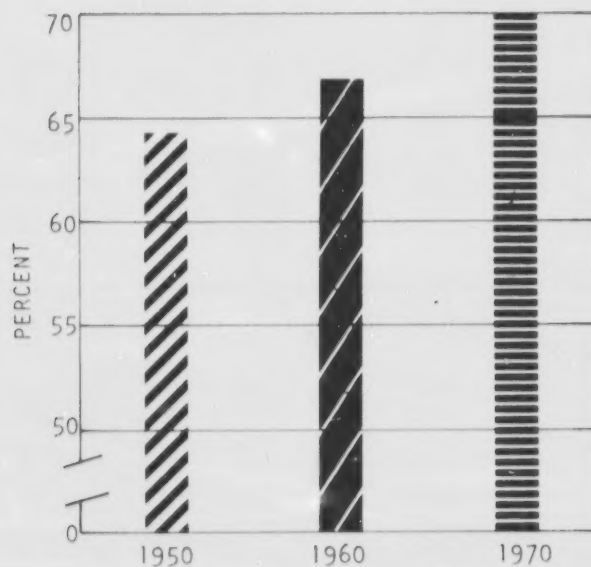
FIGURE 21. GROWTH OF THE LABOR FORCE
IN PENNSYLVANIA: 1950-1985*



*Derived from tables from the Office of State Planning and Development and the Department of Labor and Industry, Division of Research and Statistics, Labor Market Information Section, Commonwealth of Pennsylvania.

As Figure 22 illustrates, the work force as a percent of the state's population has remained fairly steady over the past 20 years, growing by 6 percentage points since 1950. The rates are slightly lower than those of the United States as a whole, but it appears that over time, Pennsylvania is "closing the gap" (in 1970, for example, the percentage for the United States was just above 70, and Pennsylvania hovered near 70 percent).

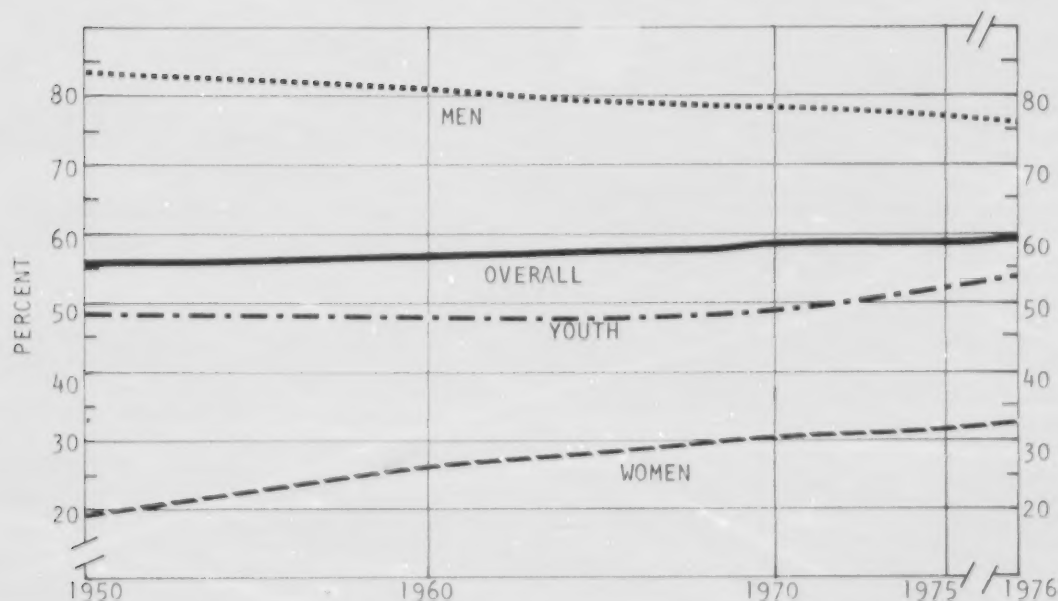
FIGURE 22. PENNSYLVANIA LABOR FORCE AS A PERCENTAGE OF THE STATE'S POPULATION AGED 16 TO 64, 1950-1970*



*Derived from *Detailed Characteristics for Pennsylvania*, U.S. Bureau of the Census, 1970.

While the overall labor force participation rates for Pennsylvania have not changed a great deal since 1950 (see Figure 23), significant changes have occurred vis-a-vis the participation of males and females. The rates for males have decreased steadily from nearly 84 percent in 1950 to 76 percent in 1976. On the other hand, female labor force participation is on the rise (the "overall" rate obscures these trends because the "male" decrease is offset by the "female" increase). Participation rates for young people showed moderate increases between 1970 to 1975.

FIGURE 23. LABOR FORCE PARTICIPATION RATES
IN PENNSYLVANIA, 1950-1976*



*Derived from *Geographic Profiles, Employment and Unemployment*, U.S. Department of Labor, Report Nos. 388, 402, 421, 431, 452, 481; also in *Annual Report*, Pennsylvania Department of Labor and Industry, Labor Market Information Section.

The following sections look more specifically at employment trends among women and youth.

More Women Workers

Traditionally, female participation in the work force has been highly correlated with education; that is, the more education a woman has, the more likely she is to be employed outside the home. Since the number of younger women with college educations is growing rapidly, proportionate increases in the number of working women can be expected.

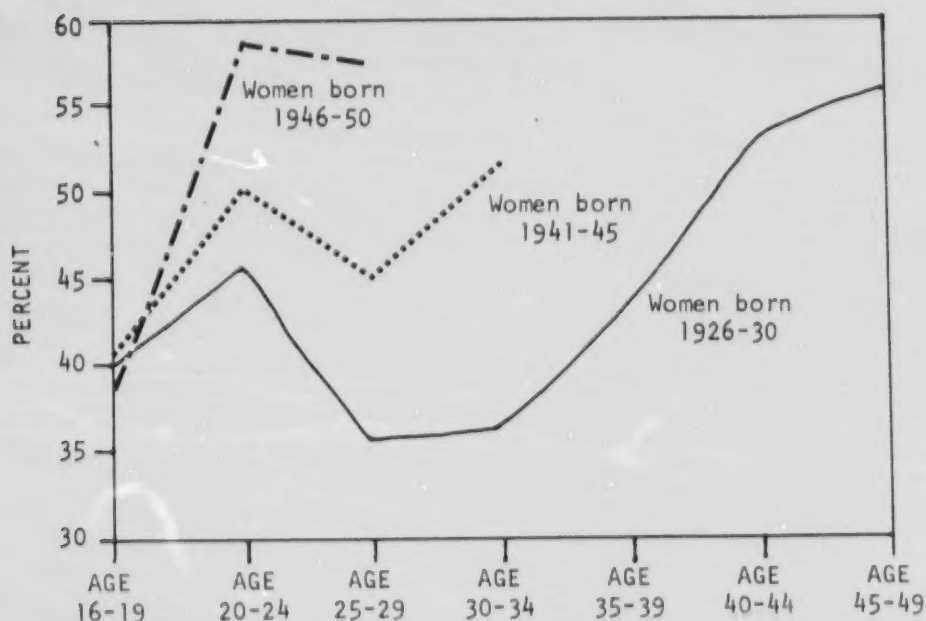
Also, responsibility for rearing small children has often kept women out of the labor force in the past. But this barrier is falling. As birth-rates have dropped to an average of two per woman, the number of years a woman must devote to childraising has also declined. Furthermore, women are no longer dropping out of the labor force when their children are born. In 1950, only 12 percent of married women with children under 6 were in the labor force; by 1975, the proportion had risen to 37 percent.

The pattern of a woman's participation in the labor force over her lifetime is thus becoming more similar to that of a man. Consider the group of women born in any five-year period prior to 1946 (see Figure 24). About 40 percent joined the work force during their late teens. This percentage typically swelled as the cohort entered its early 20s. Then, as these women approached the prime child-bearing ages of 25 to 30, the numbers in the work force declined significantly. After 35, the numbers in the work force again began to increase as the women grew older, reaching a peak around age 50--a peak which far exceeded the previous participation rate of 20-year-olds.

However, beginning with the 1946 cohort, this pattern changes. In recent years, the decrease in participation rates as women move from their early to late 20s has been evaporating. In fact, in 1975, the participation rates of women aged 25 to 29 fell less than 1 percent.

Based on these changing patterns of participation, we might anticipate that 56 percent of women 16 and over will be in the labor force in 1990.

FIGURE 24. WOMEN'S LABOR FORCE PARTICIPATION HISTORIES, SELECTED COHORTS*



Under these assumptions, labor force participation rates for women in the prime working years--ages 20 to 54--would average 75 percent, and the 1990 labor force would include nine million more women than that projected by the BLS.

It is not yet clear whether the participation of women will be spread equally among occupations or what new patterns might arise. At present, women workers are clustered in a few occupations--primarily clerical, nursing, and teaching jobs--while other occupations are dominated by men. The effects of women on various occupational roles are also still largely undetermined.** Finally, the changing distribution of men and women among

*Handbook of Labor Statistics, 1975; and Employment and Unemployment during 1975, U.S. Department of Labor, Bureau of Labor Statistics.

**For instance, a comparison of male and female management styles is provided in Jerolyn R. Lyle and June L. Ross, *Women in Industry*, Lexington, MA: D. C. Heath and Co., 1973.

occupations could have effects on currently unequal wage structures (see "Income Distribution").

The participation rate of working women in Pennsylvania has grown steadily for the past three decades (see Figure 23). Still far below that of men, it seems that the rate has not yet peaked--or leveled off (unlike that of men, which as we mentioned, is currently on the decline).*

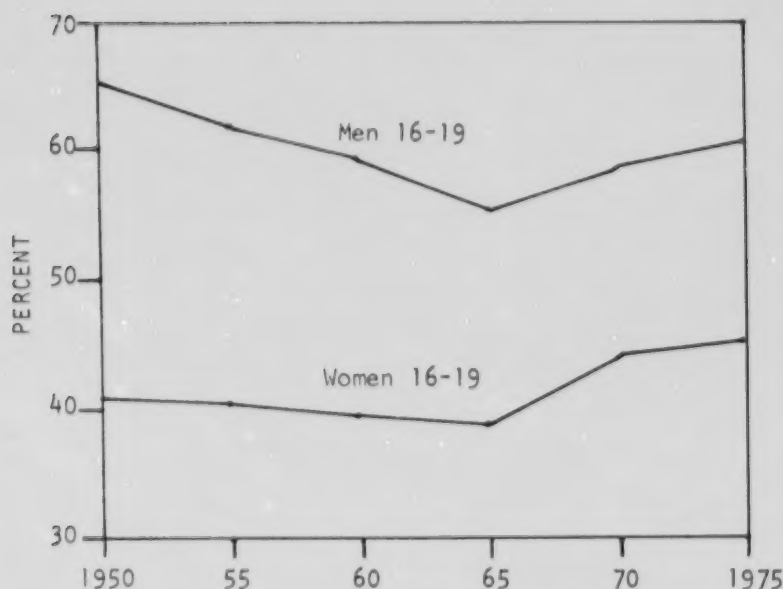
The Youth Worker: A Small Change

The labor force behavior of youth (persons 16 to 19 years old) does not reveal patterns as clearly as women's participation rates. The rates for both young men and young women declined from 1950 to 1965. However, in the last decade, this pattern has been reversed, with an upturn in youth participation in the labor force (see Figure 25). The employment level of Pennsylvania young people (see Figure 23) reflects the increase nationwide.**

*The overall labor force participation rates for women in Pennsylvania do not reveal the full impact of the increases of women's involvement: disaggregation by age might help to show that younger women are participating at a very high rate and that the "average" is lowered by nonparticipation of older women (these breakdowns by sex and age are not currently available from state agencies which we contacted).

**Increments in youth employment have come very slowly and are usually quite small. There is increasing support for the notion that employment of persons 16 to 19 years old has reached its peak, and although figures from 1950 to 1976 are positive, the trend may be turning downward. See A. H. Raskin, "'The System' Keeps the Young Waiting," *New York Times*, Section 4, December 5, 1976, p. 1, and Labor Letter, "Jobs for Youth," *The Wall Street Journal*, May 10, 1977, p. 1 (a discussion of the relationship between minimum wage boosts and youth unemployment).

FIGURE 25. LABOR FORCE PARTICIPATION
RATES OF YOUTH, 1950-1975*



One explanation for the growth of the youthful labor force is the growing percentage of students who finance their education by working at least part-time: today, almost half of all male students work while attending school compared to only one-quarter in 1947 (see Table 10). If these trends continue, the BLS projections underestimate the numbers of youth who will be seeking work in 1990. On the other hand, political decisions, such as an increase in the minimum wage, could significantly reduce opportunities for youth participation in the labor force. Nevertheless, since persons 16 to 19 are a relatively small portion of the total population, a change

*Derived from *Handbook of Labor Statistics, Employment and Unemployment during 1975*, and *The U.S. Labor Force: Projections to 1990*, U.S. Department of Labor, Bureau of Labor Statistics; and *Educational Attainment of Workers*, U.S. Department of Labor, Bureau of Labor Statistics, Special Labor Force Report No. 186, March 1975.

in their participation rate will have only a small effect on the total size of the labor force.

TABLE 10. LABOR FORCE PARTICIPATION
RATES AMONG STUDENT YOUTH*

(Percent)

<u>Year</u>	<u>Males 18-19</u>	<u>Females 18-19</u>
1947	25.4	21.2
1950	36.0	27.7
1955	43.9	28.1
1960	34.9	27.9
1965	36.2	29.0
1970	41.2	37.7
1974	44.5	39.5

THE OCCUPATIONAL MIX: FEWER
MANUFACTURING, MORE SERVICE JOBS

There will be more workers in 1990--as many as 21 million more. What types of jobs will this expanding labor force seek and find? Since 1945, there has been a gradual decline in the proportion of workers employed in manufacturing, while the proportion employed in services and government has grown (see Table 11).

**Handbook of Labor Statistics, 1975*, U.S. Department of Labor, Bureau of Labor Statistics.

TABLE 11. DISTRIBUTION OF U.S. LABOR
FORCE BY INDUSTRIAL SECTORS*

(Percent Distribution)

<u>Industrial Sector</u>	<u>1930</u>	<u>1950</u>	<u>1970</u>	<u>1975</u>
Manufacturing	32.2	33.7	27.2	23.6
Wholesale and Retail Trade	20.8	20.8	21.2	21.9
Government	10.8	13.3	17.7	19.8
Services	10.6	11.9	16.4	18.1
Transportation, Public Utilities	12.6	8.9	6.4	5.9
Finance, Insurance, Real Estate	4.8	4.2	5.2	5.4
Contract Construction	4.7	5.2	5.0	4.4
Mining	3.4	2.0	.9	.9

Table 12 compares the distribution of Pennsylvania's labor force over various occupational categories. Statistics cover the last 15 years. In all but two categories, "Transportation and Public Utilities" and "Mining," Pennsylvania closely resembles national trends. The service sector has grown, and it is expected to have the largest gains of all major industry groups during the next 10 years (an increase of 23.3 percent, particularly in medical, health services, and business services). The number of positions available in state and local governments is likely to grow by 27,000 (12.4 percent) in this period. Manufacturing has declined, but this trend

**Historical Statistics of the United States, Colonial Times to 1957, and Continuation to 1962 and Revisions*, U.S. Bureau of the Census, Washington, DC: U.S. Government Printing Office, 1961 and 1965, respectively; and *Statistical Abstract of the United States*, 1975.

may be reversed somewhat in the near future: the opening of new plants, like the Volkswagen operation in Westmoreland County (1977), may signal a slight turnaround for manufacturing positions in the next decade.

TABLE 12. DISTRIBUTION OF PENNSYLVANIA
LABOR FORCE BY INDUSTRIAL SECTORS*

(Percent)

<u>Industrial Sector</u>	<u>1960</u>	<u>1969</u>	<u>1973</u>	<u>1975</u>
Manufacturing	39	36	33	30
Wholesale and Retail Trade	19	19	20	20
Government	12	14	14	16
Services	13	15	17	18
Transportation, Public Utilities	7	6	6	6
Finance, Insurance, Real Estate	4	4	4	5
Contract Construction	4	5	5	4
Mining	2	1	1	1

Employment in mining deviated from the national norm; while it hasn't shown any large increases in the past seven years, neither has it declined greatly. In 1976, mining employment increased by approximately 2,200 positions, which would seem to be cause for some optimism. As coal is

*Derived from *Statistical Abstract of the United States*, No. 328, 1970, p. 219; No. 565, 1974, p. 346; No. 596, 1976, p. 367; and *Annual Planning Report, Fiscal Year 1978*, Pennsylvania Department of Labor and Industry, Research and Statistics Division, Labor Market Information Section, Table 16, p. 33.

anticipated to be used more as an alternative to petroleum fuels, the coal mining industry is reviving, and sizable increases are projected.* However, two caveats should be issued. First, coal production is becoming more and more capital-intensive (rather than labor-intensive, as it has been in the past). Second, a number of other states have greater reserves of better quality coal that might be tapped during the next decade, with Pennsylvania's mines being a "next choice."**

While the trends in Pennsylvania and the United States may be similar, the distribution of labor across the board is not: a greater percentage of Pennsylvania workers remain in manufacturing than is the case nationwide. With raw steel production expected to return to the 1970 to 1974 levels (after a slump from late 1974 to 1976), the ratio of manufacturing to other categories is not likely to shift significantly.***

Overall U.S. employment figures show a national trend away from manufacturing. Fully 25 percent of today's work force is engaged as professional, technical, management, and administrative personnel--the occupations generally requiring a college education (see Figure 26). The second largest category of workers is clerical personnel, who constitute 18 percent of the employed population. In addition to these two groups, service workers are expanding as an occupational group, from 8 percent of the work force in 1920 to 14 percent today. The proportion of workers employed in crafts and those working as operatives (mostly semiskilled factory work) has remained fairly constant at 13 percent and 15 percent respectively. Over the years, 6 percent of the work force seems to have been adequate to handle

*Annual Planning Report, Fiscal Year 1978, Pennsylvania Department of Labor and Industry, Research and Statistics Division, Labor Market Information Section, p. 58.

**See Appendix B, Table 4 for employment figures in anthracite mining and Table 5 for coal reserves. *Proceedings from the Workshop to Identify Research and Data Required to Improve North American Long-Term Coal Supply Analysis*, Sigma Research, Inc., Richland, Washington (prepared for the Electric Power Research Institute, EPRI SR-36, February 1976) discusses the phenomenon of young persons electing not to go into mining because of environmental and health concerns (see p. 33).

***Albert E. Smigel, ed., *Review and Outlook, The Pennsylvania Economy*, 1977, pp. 12, 24.

FIGURE 26. PERCENT DISTRIBUTION OF THE LABOR FORCE AMONG OCCUPATIONS, 1975*

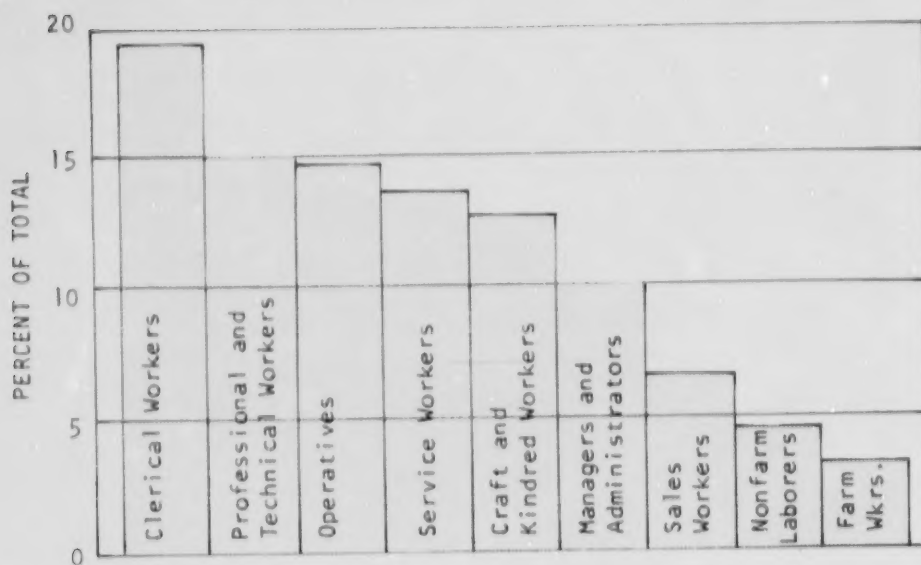
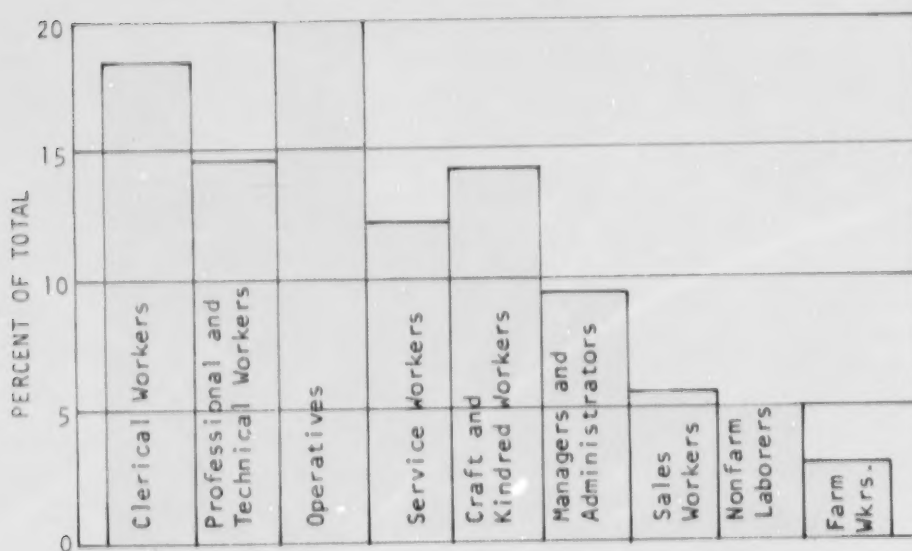


FIGURE 27. PERCENT DISTRIBUTION OF THE LABOR FORCE AMONG OCCUPATIONS IN PENNSYLVANIA, 1974*



*Historical Statistics; and Statistical Abstract of the United States, 1975.

**Derived from Pennsylvania Occupational Projections, Pennsylvania Department of Labor and Industry, Table 31, December 1976, p. 96. It should be noted that in both Figures 26 and 27 the term "farm workers" refers to those who work on farms, not in the nonfarm sectors of the agricultural industry.

sales jobs. But the declining occupations, as might be expected, are laborers and farm workers, together constituting about 8 percent of the work force.

In Pennsylvania, the labor force distribution is much the same as it is for the total United States (see Figure 27). One exception is the "Operatives" category, which constitutes 20 percent of the labor force. Between 1974 and 1985, "white collar" employment is expected to increase from 47.2 percent of total employment to 48.8 percent (includes professional managerial, sales, and clerical personnel). "Blue collar" work (performed by crafts workers, operatives, and nonfarm laborers) in Pennsylvania is likely to continue declining, from 39.1 percent in 1974 to 37.4 percent in 1985. The downward pattern in agriculture (farm workers) will probably be maintained, with a loss of approximately 9,000 jobs (a 24.6 percent decline) by 1985.*

Future Job Distribution: Three National Scenarios

Several forces will shape the nation's future occupational mix. Technological developments is one. Technology is often viewed as automation, as labor-saving devices. But technological developments may also include alternatives which emphasize the role of human labor in the production process. Such a trend, together with a potential reluctance to use energy-intensive technologies, could reverse current trends, fostering more varied production jobs and fewer supervisory positions. Maintenance and repair jobs could also increase in number and importance.

The evolution of the economy will also determine future job distribution. The employment effects of alternative national priorities have been investigated by Roger Bezdek.** Using an input-output model of the U.S. economy, he examined three alternative economic scenarios: a social welfare economy, a military defense economy, and a status quo projection.

*Ibid., p. 6.

**Roger H. Bezdek, *Long-Range Forecasting of Manpower Requirements--Theory and Applications*, New York Institute of Electrical and Electronics Engineers, Inc., 1974.

Although the total wealth (or GNP) produced in all three scenarios is the same, the level of employment varies by seven million. The social welfare alternative accommodates a total employment of 101 million compared to 94 million under the defense alternative and 96 million under the status quo alternative. Table 13 displays Bezdek's analysis of manpower requirements under "defense-oriented" and "social welfare-oriented" scenarios.

TABLE 13. VARIATIONS IN EMPLOYMENT REQUIREMENTS
IN SELECTED INDUSTRIES HIGHLY
SENSITIVE TO ECONOMIC ORIENTATION (1980)*

(Variations are calculated using the status quo orientation as the baseline; that is, employment requirements under the defense and social welfare alternatives are shown as a percentage of employment requirements under status quo.)

	<u>Status Quo</u>	<u>Defense- Oriented</u>	<u>Social Welfare- Oriented</u>
Military Personnel	100	125	60
Iron and Ferroalloy Ores Mining	100	112	134
Lumber and Wood Products (except Containers)	100	94	110
State and Local Government Administration	100	112	122
Federal Government Administration	100	104	95
Public Health	100	70	175
Public Education	100	75	160
New Construction	100	87	137
Radio, TV, and Communications Equipment	100	109	93
Metalworking Machinery and Equipment	100	110	90

*Bezdek, op. cit., pp. 8-36.

While manpower requirements for some occupations are highly sensitive to the type of economy, it is also important to note those findings which are consistent across all three scenarios since they represent long-term trends not likely to be altered. Under all three alternative scenarios, employment increases most substantially at the upper skill levels. The middle skill level continues to represent the greatest total employment, and industrial manpower requirements at the lowest skill level change very little. Finally, projections under all three scenarios indicate that the service sector of the economy will experience the greatest increase in employment requirements, while the farm sector and most middle-level manufacturing jobs will continue to decline both relatively and absolutely.

UNEMPLOYMENT AND UNDEREMPLOYMENT

Based on past trends, nationwide unemployment rates exceeding 5 percent will likely characterize the American future.* To bring unemployment down to 5 percent by 1980, it is estimated that 12 million new jobs will be needed--almost twice the number which were created in the last five years.** Thus, even an optimistic growth scenario will probably fail to reduce unemployment to an "acceptable" level. Furthermore, it is important to note that unemployment is not evenly distributed throughout the labor force; accordingly, the average rate of unemployment can obscure almost catastrophic incidence of joblessness among certain segments of the population. Since 1950, the unemployment rate for blacks has been double that of whites; since 1963, the rate of teenage unemployment has been almost three times as high as the average. For black youth, this double burden has resulted in unemployment rates approaching 40 percent. The disproportionate burden of unemployment on black youths raises the spectre "that a whole generation of black youth is growing into adulthood without access to jobs, training, or skills."***

*See Appendix B, Figure 8 for a discussion of unemployment trends between 1947 and 1975.

**See "Why Recovering Economies Don't Create Enough New Jobs," *Business Week*, March 22, 1976.

***Vernon E. Jordan, Jr., "Is Unemployment 'Desirable'?", *Saturday Review*, August 7, 1976, p. 15.

The unemployment rate in Pennsylvania has traditionally hovered near, or slightly below the national rate (see Figure 28). This trend persisted through the 1960s and early 1970s; however, since 1975 the unemployment rate in Pennsylvania has surpassed that of the United States as a whole.*

On the surface, Pennsylvania does not seem likely to have a lower level of unemployment in the near future because its job formation rate has fallen far below that of the nation, to approximately half of the U.S. rate. Although efforts have been made to create new jobs within the state (negotiations with Volkswagen, for example), the 1977 Pennsylvania job formation rate continues below the U.S. average.**

The energy choices of the country have the potential to significantly affect the unemployment rate within the state. Pennsylvania's unemployment might decline considerably, if the United States decides to use the types of coal resources held within the state. On the other hand, if alternative sources of energy are chosen, or different kinds of coal (and methods of procurement) are sought, Pennsylvania is not likely to reap great benefits.

On an optimistic note, 1977 coal production (primarily bituminous coal) approached the record level established in 1956.*** Since 1973, the industry has shown strong performance. Even anthracite coal, which had been a declining industry since World War II, is showing some signs of life.**** This fuel, low in sulfur and ash, is being considered for operating power plants which might be built in Pennsylvania, thus providing more jobs in manufacturing and construction.

There are factors, however, which suggest that the optimism about Pennsylvania's economy and coal should be tempered. These include the amount

*Albert E. Smigel, ed., op. cit., p. 25.

**Edward G. Grogan, "Telephone Outlook for 1977," in Albert E. Smigel, ed., op. cit., p. 13.

***William A. Vogely, "Minerals in Pennsylvania," in Albert E. Smigel, op. cit., p. 11.

****See Appendix B, Figure 9, "Mineral Production in Pennsylvania, 1950-1975," and Appendix B, Table 6, "Coal Production in Pennsylvania."

FIGURE 28. U.S. AND PENNSYLVANIA
UNEMPLOYMENT RATES: 1963-1976*



*Albert E. Smigel, ed., op. cit., p. 25.

and quality of coal reserves, mechanization of the industry, environmental policies, and the development of competing energy sources. At least four other states have much larger coal reserves than Pennsylvania and greater proportions in the low sulfur range.* The mining of high-quality anthracite involves open pit methods, which are generally less desirable. In the past decade, environmental legislation has been passed which prohibits or limits the use of certain economical mining techniques; the Mine Health and Safety Act, the National Environmental Policy Act, and the Clean Air Act are examples. New union work rules also affect the productivity of the industry. *Energy*, an economics and engineering newsletter, summarized the coal issue this way: "The coal is there, but there's too much of the wrong kind in the wrong place. The battle is over whether it will serve on its terms or ours."**

The total number of business firms in Pennsylvania has risen consistent with the general U.S. trend.*** However, since 1974, the industrial and commercial failures trend for Pennsylvania has been higher than the U.S. rate. The U.S. rate in 1974 was 38 per 10,000; it was 39.8 for Pennsylvania. In 1975, it was 43 and 58.2, respectively.**** During the decade from 1964 through 1974, the direction of change in the number of manufacturing establishments in the state has been downward (with the exception of 1969). New businesses continue to be established, but failures and migration have been negating their effects on unemployment and the general economic status of the Commonwealth.*****

*See Appendix B, Table 5, "Coal Reserves." Pennsylvania State University's *Economic Analysis of the Coal Supply: An Assessment of Existing Studies, Volume I* (prepared for the Electric Power Research Institute, EPRI 335-1, February 1976) points out that very limited amounts of cheap-to-mine, low sulfur coal are available in Appalachia.

***Energy* is published by Business Communications Co., Inc., Stamford, Connecticut; see vol. 1, no. 2, Winter 1976, p. 1.

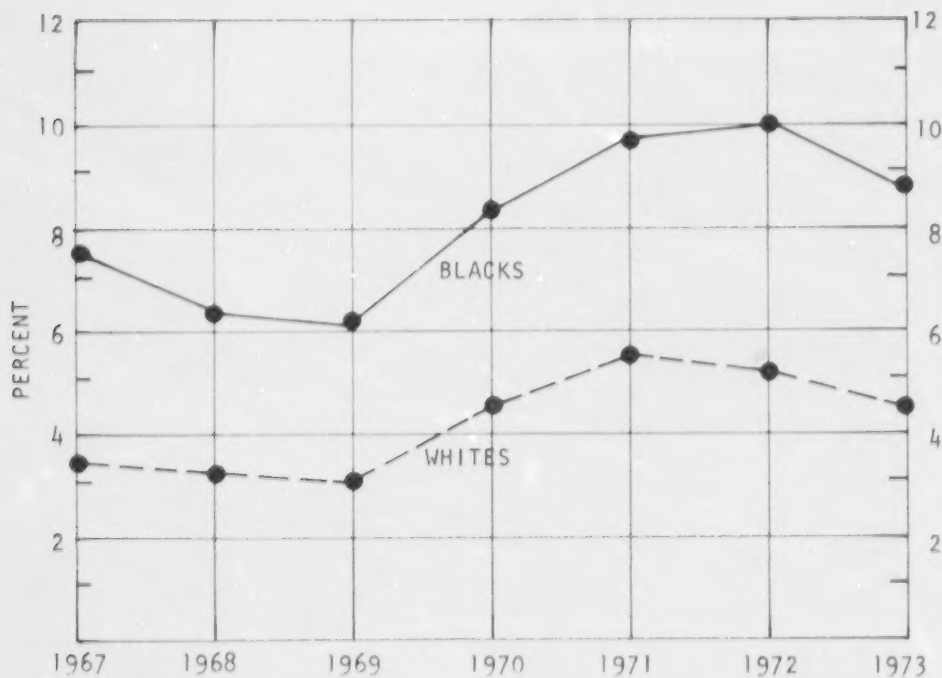
***See Appendix B, Table 7, "Number of Business Firms in Pennsylvania."

****See Appendix B, Table 8, "Industrial and Commercial Failures in Pennsylvania."

*****See Appendix B, Table 9, "Change in the Number of Manufacturing Establishments in Pennsylvania."

Blacks in Pennsylvania have always had a much higher unemployment rate than whites, but the gap between the two groups narrowed a bit in the late 1960s. Since the early 1970s, joblessness among blacks has increased significantly, to a rate twice that of whites (see Figure 29); the figures for Pennsylvania are consistent with those for the nation as a whole.

FIGURE 29. UNEMPLOYMENT RATES AMONG BLACKS AND WHITES IN PENNSYLVANIA: 1967-1973*



*Derived from data published by U.S. Department of Labor, Manpower Division; and from *Manpower Report of the President*, U.S. Department of Health, Education, and Welfare, Office of Education, pp. 343-4.

Unemployment rates in Pennsylvania cities have varied widely over the last 10 years (see Table 14).

TABLE 14. UNEMPLOYMENT RATES IN MAJOR PENNSYLVANIA LABOR AREAS: 1963-1973

(Percent)

<u>Major Labor Area</u>	<u>1963</u>	<u>1965</u>	<u>1967</u>	<u>1969</u>	<u>1971</u>	<u>1973</u>
Allentown-Bethlehem-Easton	5.6	2.8	2.3	1.8	4.3	2.8
Altoona	10.2	6.7	7.6	3.3	5.6	5.1
Erie	7.7	4.1	3.5	2.9	4.8	3.9
Harrisburg	4.8	2.9	2.3	2.0	3.2	2.3
Johnstown	10.6	5.7	5.5	4.4	6.8	5.0
Lancaster	3.5	1.9	1.8	2.0	3.5	2.4
Philadelphia	6.5	4.3	3.2	2.9	5.7	5.4
Pittsburgh	8.0	3.6	3.1	2.5	5.3	4.6
Reading	4.6	2.2	1.7	1.5	3.2	2.4
Scranton	11.1	6.9	4.2	4.1	6.4	5.1
Wilkes-Barre-Hazleton	9.7	6.3	4.5	3.9	6.3	4.9
York	5.9	2.7	2.3	2.0	3.7	2.8

Underemployment: National Trends to Watch

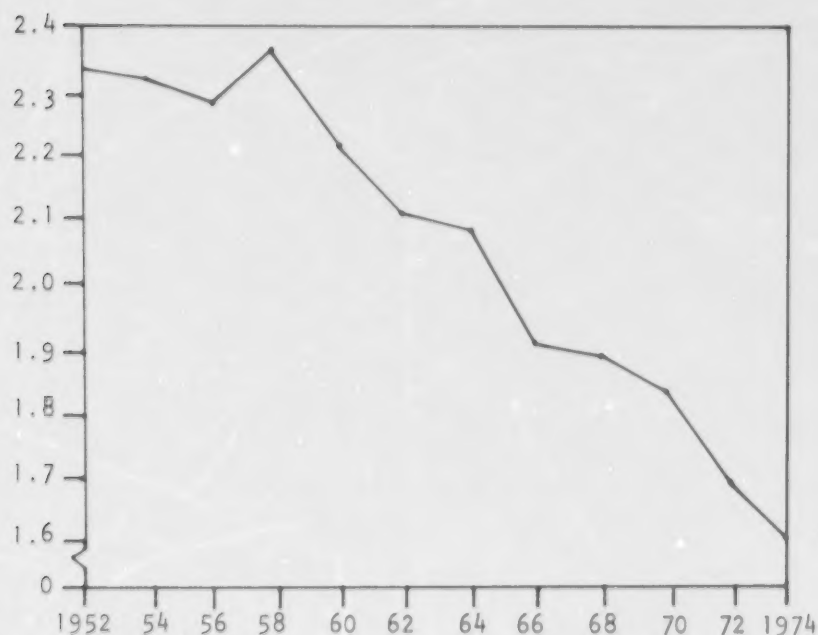
Unemployment is no longer the only significant measure of a mismatch between jobs and people. *Underemployment*, a phenomenon of special concern to educators, can be anticipated at an increasing rate, as the number of educated persons increases more quickly than the number of jobs which require academic training. Many people will have to accept jobs for which

they are overqualified. This situation is exacerbated as occupational expectations (the desire for "meaningful work") expand and the array of occupations available narrows. Some measures of underemployment are discussed below.

The "Good Job" Squeeze

While unemployment will stalk all Americans, another very visible pressure on the job market in the future will be the number of people looking for "good" jobs. The ratio of professional and managerial jobs to college graduates has declined almost steadily since 1952 (see Figure 30).

FIGURE 30. RATIO OF PROFESSIONAL AND MANAGERIAL JOBS TO COLLEGE GRADUATES, 1952-1974*



*Derived from Richard B. Freeman, *The Over-Educated American*, New York: Academic Press, 1976, p. 17.

By 1990, about 22 percent of the labor force will have four or more years of college education, compared to 16 percent today and 7 percent 25 years ago. And over the last 15 years, the proportion of male college graduates who have had to settle for nonprofessional/nonmanagerial jobs has increased threefold; the proportion of women has grown fourfold. Based on these trends, the U.S. Bureau of Labor Statistics projects a surplus of college graduates reaching 140,000 annually by 1985. Thus, over the next decade, more than one million college graduates may not be able to find the type of jobs traditionally thought to require a college education.

On the other side of the coin, many "low status" jobs go begging. Areas with low unemployment, such as Dallas, have no "takers" for these jobs, and even in areas with high unemployment, such as Boston, the turnover rate is 150 percent.

The need for menial labor has grown rapidly in the last decade with the increase in the service sector. Between 1960 and 1970, for example, the number of jobs for garbage collectors doubled; those for janitors increased 50 percent; and the number of hospital aides and orderlies needed burgeoned by 80 percent. While some have argued that menial labor will disappear with increasing mechanization, others point out that there are limits on what can be mechanized. Currently, 9 to 14 million persons (or 10 to 15 percent of the work force) are engaged in menial labor, and the Bureau of Labor Statistics projects that, over the next decade, openings in many low status jobs will increase faster than total employment.*

This double-edged sword of a surplus of college graduates and a burgeoning of menial jobs is intertwined with the future of postsecondary education. Several alternatives can be envisioned, each with slightly different implications for higher learning. For example, wages for menial jobs might be raised to attract workers. This strategy would, of course, tend to decrease the number of people pursuing higher education to achieve

*For a discussion of present and potential difficulties in filling menial jobs, see Edmund Falter Mayer, "Who Will Do the Dirty Work Tomorrow?," *Fortune*, January 1974, p. 132; and Harold Wool, "Future Labor Supply for Lower Level Occupations," *Monthly Labor Review*, March 1976, pp. 22-31.

high wages, since alternative paths would be available. However, such a change seems plausible only in a full employment economy.

Assuming no major restructuring of U.S. economy or the workplace, college degrees could well become admission tickets for an increasing number of jobs formerly performed by those with only a high school diploma. The less-than-college educated would be pushed farther down the employment status ladder where they, unhappily but out of economic necessity, would perform the menial work. Underlying the entire economy would be a substratum of the more or less permanently unemployed who subsist on welfare and crime.

Little attempt has been made to change the expectations of students to more closely match with the opportunities that will actually be open to them. Postsecondary institutions have not invested much effort in life planning, either. As a result, persons who are displaced from positions later in life are not prepared to deal with their new status. Berg summarizes the discrepancies between education as career preparation and jobs:

Thus, while America fools many of its young by linking job opportunities to diplomas and degrees from schools that provide sometimes pitifully inadequate--indeed, appalling--experiences, the demand for a better-educated work force has grown in relation to changes in the mix of occupations accompanying technological and other changes in American industry.*

Educationally, no significant expansion of efforts to further ease the entry of the excluded into higher education is being pursued. While the poor, the ethnic minorities, or the unemployed may not be excluded from education because of their status, only the "super" men and women will overcome the barriers to entry.

The Promotion Squeeze

If finding a good job will be hard in 1990, getting a promotion will probably be equally difficult. A most notable characteristic of the 1990 labor force will be the concentration of workers in the 25-to-45 age bracket. Workers of this age will constitute 52 percent of the labor force

*Ivar Berg, op. cit., p. 10.

under BLS projections. The ratio of younger workers to senior workers (who generally occupy the higher positions) will thus increase sharply. In 1972, for example, there were only 98 workers 35 to 44 years old for every 100 workers 45 to 54; by 1985, there will be 142.* Given this composition of the work force, it appears that at least some career ladders will become severely congested.

This potential "promotion squeeze" could produce a rash of midlife career changes. At present, little is known about the actual process of midlife career change; even less is known about potential career changes. The act of changing careers currently occurs mostly at the youngest adult ages. But the desire for career redirection extends well into midlife. Under favorable economic conditions, which would tend to put career progress ahead of job security in jobholders' minds, growing discontent among older workers and impatience among younger workers stalled at the base of the career ladder could erupt into a prolonged demand on the schools for adult career retraining.

By 1990, the work force in the United States will be larger both in absolute numbers and as a percent of the population. Unemployment, especially minority unemployment, will almost certainly be a major problem; so will underemployment of the highly educated. The next 15 years are likely to be a period of change and redefinition in the work force. Individuals will be asking basic questions about the relationship between work and life goals. And society as a whole will have to juggle issues like the availability of work and the desirability of alternative working arrangements. As a result, the personal working history of individuals is likely to continue to change: more part-time work, more career changes, and probably earlier retirements for many.

*Peter A. Morrison, *The Demographic Context of Educational Policy Planning*, The Rand Corporation, Santa Monica, California, P-5592, 1976.

THE PROVISION OF SOCIAL SERVICES:

A BATTLE FOR SHARES

In a slow growth economy, it is difficult for one group to gain unless another loses. Relative shares become all-important. Some early battles are already being waged to equalize portions of the social service pie. Attempts to change the rate structure of public utilities to favor the less wealthy are one example. So is the recent California Supreme Court decision that inequalities in school spending due to differing local property values are unconstitutional.* Perhaps most obvious are the proposals and counter-proposals for social insurance and transfer payments.

With the decline in their relative earnings, the poorest Americans have only been able to maintain their share of total income through government transfer payments.** Without such programs as Aid to Families with Dependent Children, Social Security, and disability allowances, the relative income shares of the bottom fifth of the population would have shrunk. (It has been estimated that 60 percent of the income received by the poorest quintile comes from transfer payments.***) Now, just as slower economic growth makes any gains unlikely, there is increasing pressure to stabilize or even reduce transfer payments. Indictments of inflationary government deficits, warnings about the possible bankruptcy of Social Security, and the growing rumble from hard-pressed taxpayers suggest that transfer programs may be insufficient to prevent further inequities in the distribution of income.

Accordingly, several reform strategies have surfaced, including guaranteed full employment, guaranteed annual income, and national health

**Serrano v. Priest* (L.A. 30398), decided December 30, 1976.

**Some authors have argued that in-kind transfers have actually increased the relative wealth of the poor. See, for instance, Edgar K. Browning, "How Much Equality Can We Afford?," *The Public Interest*, No. 43, Spring 1976, pp. 90-110.

***John L. Palmer and Joseph J. Minarik, "Income Security Policy," in Henry Owen and Charles L. Schultze, eds., *Setting National Priorities: The Next 10 Years*, The Brookings Institution, Washington, DC, 1976, p. 530.

insurance. Any of these options, with a pervasive impact on taxes and government spending, could further stretch public and private support of education.

In Pennsylvania, state funding of postsecondary education has grown substantially over the past two decades (see Table 15).^{*} Toward the mid-1970s, a slowdown of increments begins. Given current inflation trends, the projected funding increase from 1974 to 1979 shrinks further.

TABLE 15. STATE FUNDING FOR PENNSYLVANIA
HIGHER EDUCATION, 1960-1980^{**}

(Millions of Dollars)

<u>Years</u>	<u>Amount</u>
1960-61	\$ 71.9
1964-65	76.2
1969-70	320.0
1974-75	498.5
1979-80 (Projected)	631.5

The slower level of increase in education funding is likely to be the pattern through 1990. Funds currently used for education can no longer be anticipated based on a history of allocation, but must be justified item-by-item. Although the overall tone is one of cautiousness about spending, some indicators of public confidence in postsecondary education investment

^{*}The growth is still significant, even after adjustments are made for the addition of various financial aid programs.

^{**}*Governor's Executive 1977-78 Budget, Volume II, Commonwealth of Pennsylvania, p. 221; and "Full-Time Equivalent Student Cost and State Funding, 1960-61 to 1975-76," Existing Laws, Regulations, Policies, Studies, and Papers Affecting Postsecondary Education in Pennsylvania, Document I, Pennsylvania Office of Higher Education, Section B, Table 5, p. 7.*

have emerged. Two recent reports have indicated that the financial crisis in state support of higher or postsecondary education is subsiding.* While these findings give reason for some optimism, the "waters are muddied" by contrary results from other surveys.** Additional research in the area may provide more generalizable results. Pennsylvania might be an ideal candidate for such a survey, being quite different from Alabama, but representative of many other states.

Pennsylvania now spends approximately 40 percent of its general and special funds in this area (see Figure 31), with \$500 million going for postsecondary education alone. The Basic Education Division vies to some extent with Higher Education (postsecondary) interests. The future question put to Pennsylvania's government and citizens will not only be how to divide education funds equitably, but also to what extent education merits investment. Some major competitors for social service dollars are described below.

Full Employment

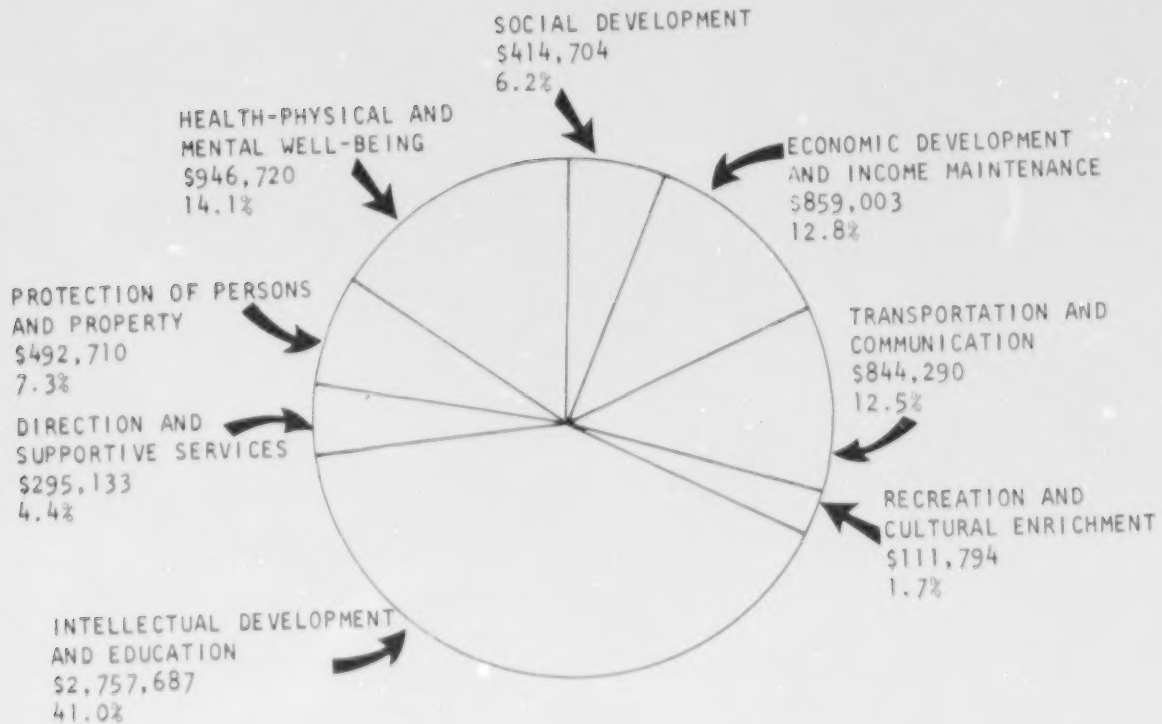
The proper role of government in ensuring full employment has been widely debated. Some proposals, such as the Humphrey-Hawkins bill, would establish the government as employer-of-last-resort to provide jobs for

*Dr. Thomas G. Owings, in the *Alabama Citizens on Postsecondary Education: Survey '76* (Institute of Higher Education Research and Services, University of Alabama, 1977), showed that citizens of that state were willing to give additional support to postsecondary education (disaggregated by race, the response continued to be positive). A 1977 follow-up of the Survey is in process; it may help show that the positive attitude is a trend, rather than a fluke. The Carnegie report, *The States and Higher Education: A Proud Past and Vital Future*, outlines a pattern in which states--or, more accurately, taxpayers--are taking more responsibility for the funding of postsecondary education. This survey does not, however, measure citizens' feelings about investment in education; the taxpayers' positive attitudes are interpreted primarily from histories of funding. The ranking of states' contributions to postsecondary education are listed in Appendix B, Table 10.

**The Gallup Poll's annual survey does not support the Alabama and Carnegie findings. See Robert C. O'Reilly and Thomas Sheridan, *An Analysis of the Gallup Education Survey, 1969-1974*, Educational Resources Information Center, 1975.

FIGURE 31. DISTRIBUTION OF THE COMMONWEALTH DOLLAR (GENERAL FUND AND SPECIAL FUNDS), 1977-1978 FISCAL YEAR*

(Dollar Amounts in Thousands)



those unable to find work in the private sector.** Federal taxes would finance the hiring of the unemployed to perform many services which simply are not provided at present. It is ironic that it has proved easier in the past to fund transfer programs than public employment programs. But transfer programs have fewer direct costs and so appear to be more economical. Of course, the more expensive public employment programs also

*Governor's Executive 1977-78 Budget, Commonwealth of Pennsylvania, p. 8.

**The Full Employment and Balanced Growth Act of 1976, introduced into Congress as H.R. 50 and S. 50 in March 1976 by Senator Hubert Humphrey and Representative Augustus Hawkins.

promise to provide additional societal benefits, such as cleaner streets or better services to the aged.

Others, concerned about bureaucratic inefficiencies and resulting high costs, would limit government's role to stimulating job creation in the private sector through subsidies to employers, tax incentives, and other similar measures.

Full employment programs would, of course, benefit only those able to work. And even to be successful with this group, such programs would have to foster changes in the wage structure. According to Eli Ginzberg, economist and head of the National Commission for Manpower Policy, only 40 percent of all jobs currently pay enough to permit a wage-earner to support a family.*

A broader question raised by full employment programs is whether our traditional notions of tying work to income will be valid in the future. It may be that neither traditional welfare nor traditional workfare programs will prove effective in discouraging wasteful consumption while assuring basic necessities to all in a limited-growth society.

Guaranteed Annual Income

Proponents of guaranteed annual income argue that it is a more equitable and a more efficient way to provide income support to those unable to obtain a minimum standard of living. Present categorical programs do not provide aid to all of those in need, such as husband-wife families in poverty. A guaranteed annual income promises to do this directly.

However, the obstacles facing such a program are significant. Consider the fate of ^{the}former President Nixon's Family Assistance Plan which was opposed by both liberals and conservatives. A legislative mandate for a guaranteed annual income program may depend upon public recognition that the economy cannot provide jobs for all those able to work. Also, the cost of providing an adequate guaranteed annual income would be great; hence, a thorough-going tax reform would seem to be a necessary prerequisite. In

*Quoted in *Working Woman*, vol. 1, no. 2, December 1976, p. 5.

light of current tax reform proposals, there are serious questions about whether or not any guaranteed annual income program is probable for the near future.

National Health Care

After food, housing, and transportation, medical care is the largest single expense for Americans. Accordingly, reform of the financing and organization of health care in the United States could be an important move toward equalization of income. Several proposals for shifting the burden of medical expenses from individuals to society at large are before Congress and enjoy wide public support. The type of system which will eventually be enacted will depend not only on financial factors, but also on changing concepts of medical care. Medical practice is under fire today, and much of the antagonism stems from a debate over its traditional focus: many doubt that it is directed at the fundamental causes of poor health. They suggest that the disease treatment model of health care has been applied too narrowly and may be obsolete. In 1900 in the United States, the most prominent fatal diseases were pneumonia, influenza, and tuberculosis. Today, they are cancer and heart disease. The causes of former killers invite a direct medical solution. But cancer and heart disease may be more closely related to environmental factors and patterns of individual behavior. Thus, while the key to large-scale reductions in turn-of-the-century diseases was medical technology, the key to large-scale improvement in health today could involve varied approaches.

In its discussion of health care, the Council of Economic Advisors addresses the possibility that

. . . large additional expenditures on medical care may be a very costly way of obtaining small improvements in measured health status for this country. Apart from medical care, there are other ways in which the Nation's health may be improved. . . . More important may be further research on, and the spread of current knowledge about, the effect of life-style and environment on health status.*

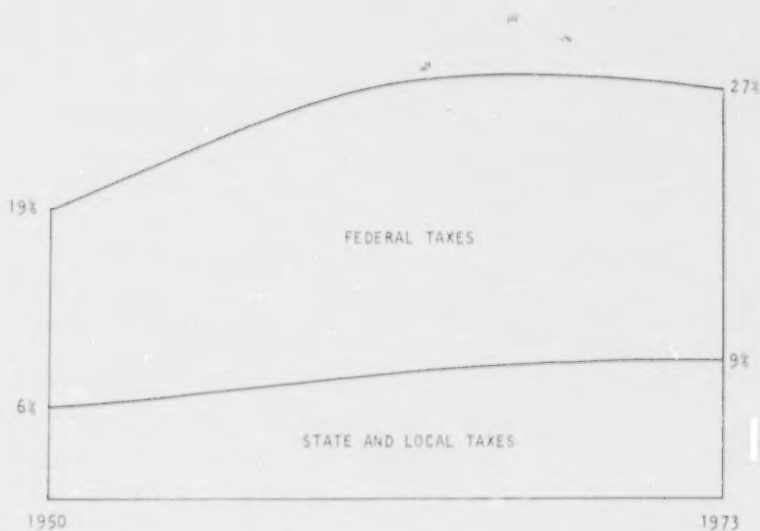
**Economic Report of the President for the Year 1975*, Washington, DC: U.S. Government Printing Office, p. 121.

A publicly financed health program based on these principles would focus on preventive measures. For the individual, health education would be a primary strategy; and at the societal level, preventive measures would have to include programs to reduce pollution and other environmental causes of disease.

Fewer Resources, More Public Control

Proposals for full-employment, guaranteed annual income, and national health care plans suggest an increased role of the state or federal government in allocating shrinking resources. And in fact, there are indications that control of resources is shifting from the private to the public sector. One such indicator is the growth of taxes as a proportion of gross national product (see Figure 32). Also, there has been a steady decline in

FIGURE 32. TAX REVENUES AS A PERCENTAGE OF GROSS NATIONAL PRODUCT*



*Derived from *Statistical Abstract of the United States*, 1975.

the share of national income spent by individual consumers. Before the Second World War, personal consumption expenditures represented over 70 percent of total national income. This share declined to 63 percent by 1970 with a corresponding increase in the proportion spent by government (see Table 16).

TABLE 16. GROSS NATIONAL PRODUCT*
(Percentage Distribution)

	<u>1930</u>	<u>1950</u>	<u>1970</u>	<u>1975</u>
Personal Consumption Expenditures	77	67	63	64
Government Purchases of Goods and Services	10	13	22	22
Gross Private Domestic Investment	11	19	14	12
New Exports	1	1	5	1

While the public--or government--share of national income has not increased in the last few years, it is unclear whether this freeze represents a reversal of the long-term trend toward increased social allocation of resources or merely a temporary pause. Certainly, national priorities will be a major influence.

The social services picture for the next decade remains blurred, with only broad outlines immediately apparent. Certainly, limited growth will mean intensified struggles for scarce dollars--among both social classes and social institutions. Alternative social service programs are possible (perhaps even likely), though the *form* of these programs will be guided strongly by political currents. Needs for social services will be high; society's ability to provide these services must still be demonstrated.

*Derived from *Statistical Abstract of the United States*, 1975; and *Survey of Current Business*, U.S. Department of Commerce, July 1976.

QUALITATIVE COMPONENTS OF CHANGE

The components of change discussed thus far can be measured with some precision. While future developments in areas such as income distribution are far from certain, the indicators of change are at least quantifiable. To perceive overall societal developments, however, it is necessary to examine qualitative factors as well. Selecting and defining these less tangible catalysts for change is a matter of assessment and choice. The three developments discussed below are examples of the types of qualitative changes which may have important impacts on postsecondary education over the next decade. In the Institute's judgment, these three components of change are important to consider; certainly, others could be added as well.

Personal Stress: On the Increase?

It is difficult to refute the argument that modern society is characterized by situations which can produce personal stress. Heart attacks, ulcers, alcoholism, mental illness, and other maladies have often been associated with rising levels of tension. Indicators of stress at a societal level are, of course, very difficult to select, measure, and justify as useful. Even general agreement about the nature of "stress" is lacking. The existence and effect of the phenomenon is clear, however.

The Office of Science and Technology Policy in the Executive Office of the President has recently concluded a study which identified "the effects of stress on individuals and society" as one of six emerging national and international problems.* Even if their warning is overstated, it is

*The goal of the study was to identify *emerging* problems, as distinct from problems which are already fully recognized. Criteria such as intensity of impact, duration of effects, immediacy of criticality, and links to other problems were used to examine several thousand potential problems which could develop in the near future. This ambitious and hazardous undertaking resulted in a series of problem descriptions. One of these, labeled "limits to the management of large, complex systems," relates to the next component of change to be discussed. The other problems identified were the growing conflict between central control and individual freedom, barriers to large-scale technological projects, and the potential misuses of consciousness technology. Fifty other potential problems are also discussed with a lesser degree of detail. See Peter Schwartz et al., *Assessment of Future National and International Problem Areas, Volume I*, Center for the Study of Social Policy, Stanford Research Institute, Menlo Park, California, 1977.

clear that the effects of personal stress are likely to be significant for the foreseeable future.

Indicators of stress levels are difficult to define and quantify. Statistics typically cited deal with consumption of tranquilizers or anti-depressants, admissions to mental hospitals, incidence of heart attacks, and other tangible measures which could conceivably be stress-related. Each of these phenomena is affected by a variety of environmental factors, such as greater drug availability and the development of outpatient treatment centers. To draw a direct link with rising levels of personal stress is, therefore, difficult.

Nevertheless, the relationship between overall societal conditions and the incidence of personal stress is apparent. A recent study by Dr. Harvey Brenner (reported to a Congressional committee) examined the correlation between changes in national economic policy and mental health factors.* If the relationship between societal factors and tension is indeed strong, personal stress is likely to increase over the next decade.

At the present time, there are few examples of educational programs which prepare students to deal with stressful situations. Certainly, many fine teachers implicitly teach such skills as part of their daily activities. However, the resources and creativity of educational institutions have not yet been focused on ways of identifying and balancing the effects of increasing stress. Meanwhile, at least partially in response to stress, Americans are becoming increasingly attracted to movements which offer a new sense of stability. A recent Gallup poll forecasts a "religious revival," with renewed interest in evangelical religions emphasizing personal security.** Less traditional approaches include those labeled "The Aquarian Frontier" by Theodore Roszak, such as Transcendental Meditation (TM), yoga,

*See Harvey Brenner, "Estimated Social Costs of National Economic Policy: Implications for Mental and Physical Health and Criminal Aggression," *Employment, Volume 1*, Joint Economic Committee of Congress, Paper #5, October 26, 1976.

**George Dugan, "'Religious Revival' Forecast by Gallup," *New York Times*, June 19, 1977.

astrology, humanistic psychology, body therapies, biofeedback, and psychic exploration.* Educators should give attention to these approaches, identifying the potential problems and even educational opportunities they may contain.

Arnold Mitchell of Stanford Research Institute concludes his general assessment of the effects of stress by stating that the following types of information are still needed:

- Data on the principal sources of stress in America today
- Data on the physiological, psychological, and (especially for policy purposes) social effects of various types of stress
- Data on trends in stress, especially with respect to extensivity and intensivity, correlating each with population segments defined in a variety of ways, possibly including Maslovian need levels
- Data on levels of stress in each population segment identified above
- Investigation of patterns of stress and the treatment approach commonly used for each**

Institutions of postsecondary education are in a position to respond to these needs by generating new research projects, new foci for graduate work, and programs or services which respond directly to student, faculty, or community needs. Thus far, educational approaches have tended to rely on more cognitive teaching methods which are very foreign to students' personal needs. On a conceptual level, a narrow, cognitive approach assumes that students are basically receptors of information and that education is essentially the transfer of information from faculty to student. At the other extreme, a more affective approach considers the

*See Theodore Roszak, *The Unfinished Animal*, New York: Harper & Row, 1975. For a general survey of current social movements in this area, see Charles Y. Glock and Robert N. Bellah, eds., *The New Religious Consciousness*, Berkeley: University of California Press, 1976. Included in this book are the results of a survey of residents in the San Francisco Bay Area and a series of case studies of particular groups.

**Arnold Mitchell, *The Effects of Stress on Individuals and Society*, Stanford Research Institute, Menlo Park, California, 1977, pp. vi-33. This report is an appendix to Peter Schwartz et al., op. cit.

student's own intuitive experience as a source of learning. The way a student learns becomes as important as the information which is absorbed. An actual increase in personal stress levels in the United States could pose at least two challenges to education: (1) to introduce reliable personal methods for relating creatively to one's own stress levels, and (2) to prepare people to make critical judgments about "self-improvement" programs which claim to relieve personal stress. These two implications are discussed in Chapter III on "Programs and Services."

Organizational Complexity

A second qualitative component of change involves present approaches to management of complex organizations. Institutions in the developed world may have reached a size and complexity that will surpass our collective ability to manage them. Examples such as New York City or the Federal Welfare Program spring immediately to mind in considering whether or not we actually are reaching the limits of our capacity to handle complex systems.

This emerging problem has been addressed in several of our studies over the last five years. One project, for the Rockefeller Foundation, sought to identify critical issues likely to emerge over the next 10 years. In the final report, a "science" of complexity and change was proposed, based on the fairly basic recognition stated below:

The complexity of society is growing at a more rapid rate than our ability to understand it. The reasons are familiar but perhaps bear noting. The first is sheer size. There is more of everything--people, nation-states, institutions--whether measured in numbers, geographic extent, or variety. The second is the increasing interconnectedness of every element of society. To these must be added the astounding rate at which everything seems to be changing, often seemingly out of control and in ways that confound rather than respond to society's needs and desires.*

The growth in size of societal structures is evident. Municipal and corporate complexity offer two categorical examples. "In 1790 only

*Roy Amara, Robert Johansen, Andrew Lipinski, Patricia Samuel, Kathleen Spangler, and Jacques Vallee, *Emerging Issues: Some Suggestions for Research*, Institute for the Future, Working Paper WP-22, July 1975, p. 37.

24 cities in the United States had populations over 2,500 and only two over 25,000. Today's largest urban areas are a thousand times larger."* Pennsylvania itself offers a particularly interesting example of organizational complexity. It is the largest rural state in the country; but within its borders are 12 major metropolitan areas, including the 4th and 12th largest SMSAs** in the United States (Philadelphia and Pittsburgh, respectively). Corporations are often as populous as cities, and policy analysts and lawmakers wonder if our present legislative structure is capable of managing change at the current levels of scale.

Figure 33*** puts the problem in the context of historical change. Clearly the last 50 years have seen a remarkable compression of scientific breakthroughs, paralleling population growth. Figure 34 chronicles the development of information technology in the recent past, while also extrapolating to the year 2000. What is not evidenced in either chart is the growing recognition that new technologies in themselves are not enough: that in fact, the pace of development in society may have outstripped our capacity to comprehend and manage it effectively.

Educational institutions have reason to be interested in problems associated with social complexity for at least two reasons:

1. Education is in itself a large, complex system which many claim already defies understanding and management.
2. Some traditional disciplines of higher education (e.g., the social sciences) have claimed basic expertise in understanding the operation of social systems, and this expertise is now being called into question.

Experiments and strategies applied to education to make it "more manageable" have not been overwhelmingly successful. Moves toward decentralization and local control of districts were popular during the 1960s. Most did not maintain momentum; those that did actually created more layers of bureaucracy.

*Peter Schwartz et al., op. cit., p. 38.

**Standard Metropolitan Statistical Areas.

****World Facts and Trends*, New York: Collier Books, copyright 1972 by John McHale, p. 3.

FIGURE 33

SHRINKING OF OUR PLANET BY MAN'S INCREASED TRAVEL AND COMMUNICATION SPEEDS AROUND THE GLOBE

YEAR	500,000 BC	20,000 BC	500 BC	300 BC	1,500 AD	1900 AD	1925	1950	1961
Required time to travel around the globe	A few hundred thousand years	A few thousand years	A few hundred years	A few tens of years	A few years	A few months	A few weeks	A few days	A few hours
Means of transportation	Human on foot (over, ice bridges)	On foot and by canoe	Canoe with small sail or paddles or relays of runners	Large sail boats with oars, pack animals, and horse chariots	Big sailing ships (with compass), horse teams, and coaches	Steam boats and railroads (Suez and Panama Canals)	Steamships, transcontinental railways, autos, and airplanes	Steamships, railways, auto jet and rocket aircraft	Atomic steamships, high speed railways, auto, and rocket jet aircraft
Distance per day (land)	15 miles	15-20 miles	20 miles	15-25 miles	20-25 miles	Rail 300-900 miles	400-900 miles	Rail 500-1,500	Rail 1000-2000
Distance per day (sea or air)		20 by sea	40 miles by sea	135 miles by sea	175 miles by sea	250 miles by sea	3,000-6000 air	6000-9500 air	408,000 air
Potential state of world	None	A small valley in the vicinity of a small lake	Small part of a continent	Large area of a continent with coastal colonies	Great parts of a continent with trans-oceanic colonies	Large parts of a continent with trans-oceanic colonies	Full continents & Transoceanic Colonies	The Globe	The globe and more

Communications	Word of mouth, drums, smoke, relay runners, and hand printed manuscripts prior to 1441 A.D.	① The Gutenberg printing press	② The rapid print Web newspaper press	③ The Bell telephone	④ The Marconi wireless telegraph	⑤ First commercial radio broadcast	⑥ National Television	⑦ Transcontinental T.V. with the introduction of Early Bird satellite
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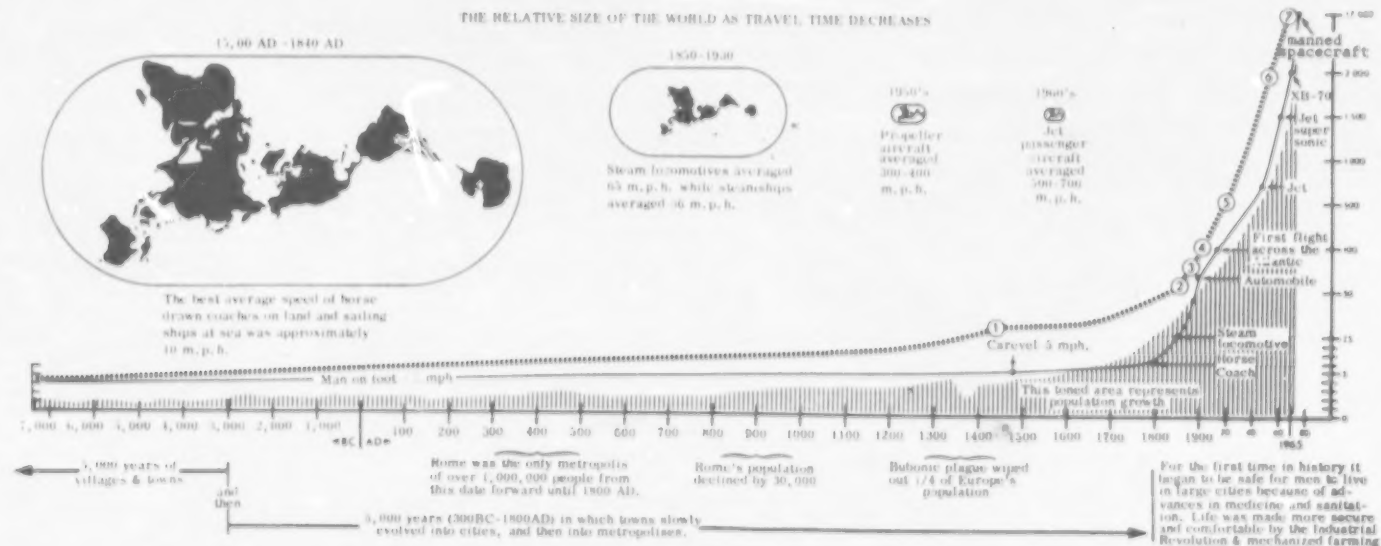
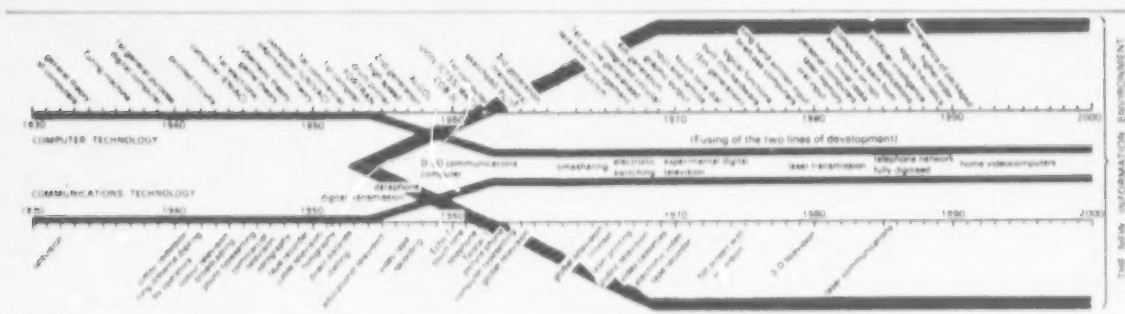


FIGURE 34. DEVELOPMENTS, USES, AND IMPACTS OF INFORMATION TECHNOLOGY*



A developing "science" of complexity and change is not immediately evident, even among new fields of study which bridge traditional disciplines (e.g., policy analysis, systems analysis, futures research, ekstistics). Donald Michael has suggested that the starting point for dealing with societal complexity and change is a realization that we are in fact still very much in a *learning* mode:

- "The highly technologized societies are burdened by hubris; they have lost a sense of cosmic prospective and sense of interdependence with the cosmos; hence, they have lost a sense of responsibility, or responsiveness.
- "A shift to an ecological, an evolutionary ethic is imperative. This in turn requires that we see ourselves as learners, as beginners, and conduct ourselves accordingly."**

*From John McHale, *The Changing Information Environment*, Westview Press, 1976. See the reference cited for more detailed discussion of chart elements.

**Donald N. Michael, "On Growth and the Limits of Organizational Responsiveness," *Technology Forecasting and Social Change*, vol. 10, no. 1, 1977, pp. 1-2. See also Michael's book, *On Learning to Plan--and Planning to Learn*, San Francisco: Jossey-Bass, 1973.

(This issue is discussed in more detail in the first section of Chapter 3 on *Programs and Services*.)

Several questions which arose in earlier Institute research remain critical if complexity is to be dealt with creatively. For example:

- *Are there new ways to represent complex systems?* Innovative methods for describing and interrelating their components may make the problems and potential for better management more evident.
- *Can we improve large systems without understanding them completely?* We need more effective ways to combine comprehensive (usually more quantitative and rationalistic) and shorter-range (usually qualitative and judgmental) approaches to the management of large systems.
- *How can we obtain early warning of latent societal problems and seminal changes?* We need to identify social indicators and the minimal data necessary to monitor and track adequately the evolving state of society.

Postsecondary education can not only contribute to finding answers for such questions but also be a prime beneficiary of the results.

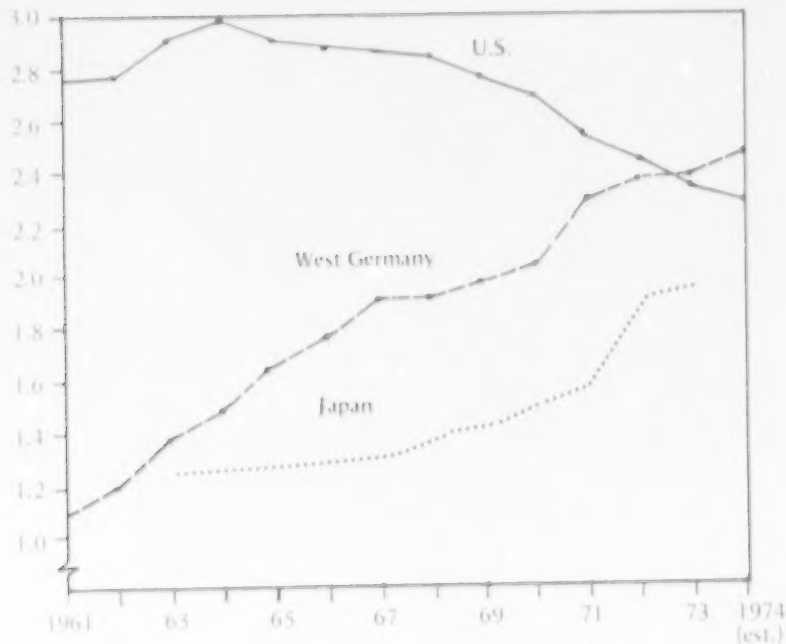
Attitudes toward Technology

Technology: once a promise but now a threat. While this interpretation is simplistic, public distrust of technology is clearly growing. Citizen concern over nuclear power and DNA research are two well-known examples. As Figure 35 shows, recent years have seen a decrease in the percentage of GNP spent on research and development in the United States. Beyond attributing this trend to general economic factors in the United States, the Institute recently gave members of its Corporate Associates Program this analysis of changing attitudes toward technology:

Societal reservations about the efficacy of technology have already hurt corporate pocketbooks. Note the rapidly increasing "price of admission" in introducing new drugs to the market, the escalating risks associated with the development of new farm chemicals, and the success of environmentalists in legislating a "do-it-yourself technology" (the returnable bottle) over more technologically sophisticated approaches to waste (massive recycling plants).

The implications of these changed attitudes and developments for the corporation can be viewed at two levels. On a general level, the balance in technology development has shifted clearly toward a

FIGURE 35. TECHNOLOGY: R&D EXPENDITURES AS A PERCENT OF GROSS NATIONAL PRODUCT*



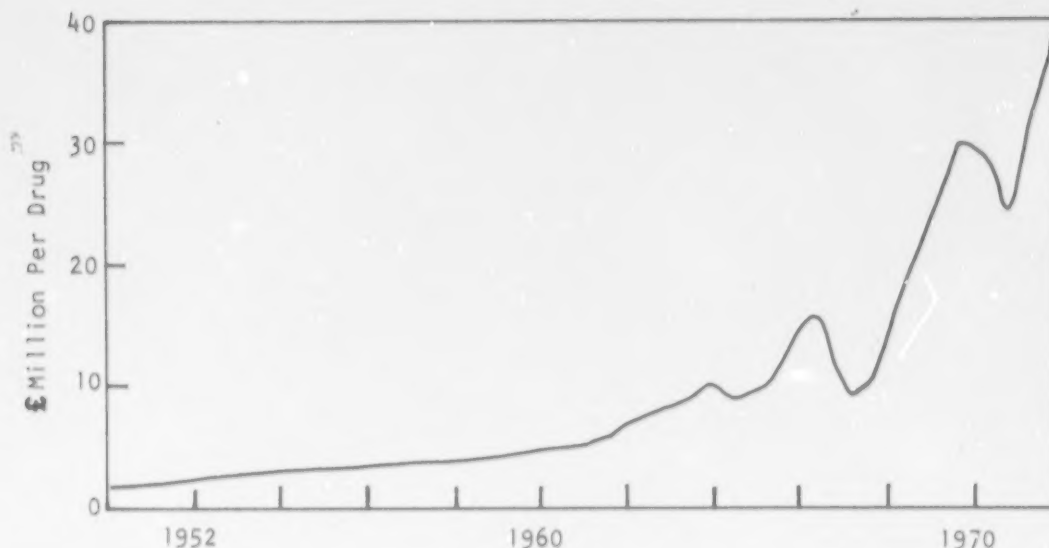
"societal pull" (as contrasted to a "technological push"), to stricter performance standards for new products, and to fewer safe havens in the usual "me-tooism" practiced by some corporations.**

Figure 36 shows the increased "price of admission" referenced above. Regulatory pressures resulting from public awareness of drug effects have joined inflation to make the introduction of new products much more costly than in the past. Similar increases have been shown in virtually every industry, creating an overriding mood among corporations of "look before

*CAP Report, Institute for the Future, February-March 1977.

**Ibid., p. 1.

FIGURE 36. PRICE OF ADMISSION: DRUGS*

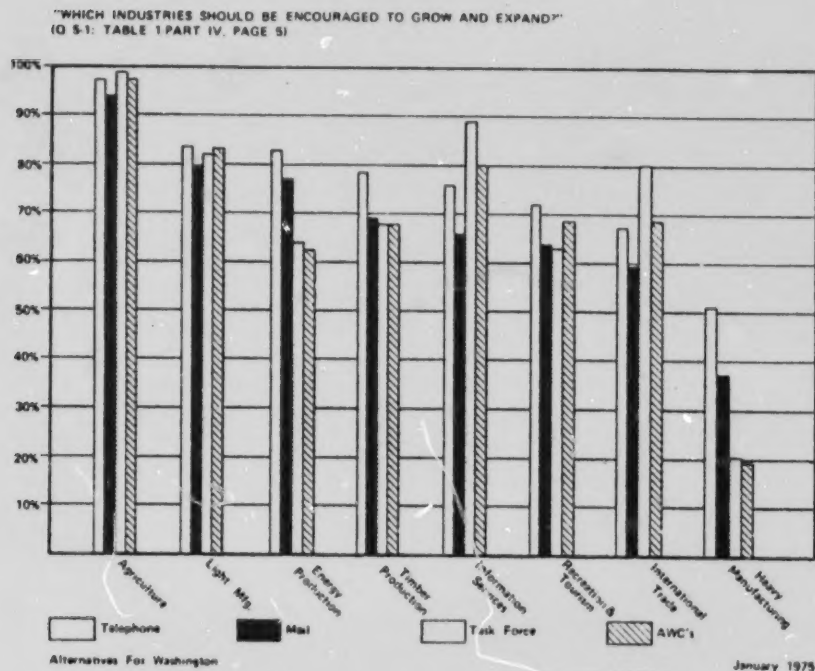


you leap." Figure 37 summarizes responses of Washington citizens regarding industries that should be encouraged in their state. High-technology industries were viewed with the most caution (regarding energy production, there was also a concern over which technologies were to be used). The trend in other states may be toward similar caution about new industries within their borders.

There has also been a growing level of concern at the federal level about the effects of technology; in 1972, the Office of Technology Assessment (OTA) was established in Washington, DC. The office was created to provide Congress with up-to-date information about potential effects of technology. A variety of research projects are now underway at OTA, most of which have direct policy implications. While the field of technology

*Roy Amara, *Overview of the Corporate Environment in the Decade Ahead*, Institute for the Future, presentation to annual meeting of the Corporate Associates Program, January 1977.

FIGURE 37. RESPONSES TO THE QUESTION: "WHICH INDUSTRIES SHOULD BE ENCOURAGED TO GROW AND EXPAND?"*



assessment is still in its infant stages, with many of the problems typical of new fields of study (see Chapter III, "Programs and Services," for more detail), the interest which generated the new field is worthy of note.

Changing attitudes towards technology are not simple effects to measure. Increases in government regulation, for example, reflect more than public disapproval. Also, increased concern does not necessarily mean that the public is ready to give up the high-consumption, high-technology conveniences of the past. "Backlashes" toward overregulation could certainly temper the overall tendencies noted earlier.

*Source: *Alternatives for Washington*, Office of Program Planning and Fiscal Management, House Office Building, Olympia, Washington, 1975, p. 28. The responses shown here were gathered using four different techniques: telephone interviews, mail questionnaires, task force groups, and local areawide conferences.

Furthermore, there are bound to be conflicts and mixed feelings, the desire to favor some technologies while minimizing the introduction of others. In education, for example, technology is likely to be looked upon as an exacerbating influence in periods of high unemployment. Further investment in equipment which might replace instructors (or alter their functions) would probably not be welcomed, while a move to more labor-intensive situations would meet with approval. On the other hand, groups for whom education becomes possible through technology are likely to have a different view. Handicapped or geographically isolated students are likely to favor equipment which can facilitate their learning.

"Changing attitudes" towards technology does not imply a pendulum swing. It means more awareness and evaluation of trade-offs. In this respect, public consciousness has broken with the past. During postwar years, industrial growth and technological advancement paved the way to the American dream. Today, however, the blanket endorsement has been withdrawn, and the years ahead are likely to bring closer scrutiny and more deliberate choices.

CONCLUSION

The preceding descriptions of components of change represent our judgment of what constitutes the basic, undergirding indicators of U.S. societal directions and alternatives. The information in this chapter reflects current Institute thinking, based on specific research and continuous monitoring of varied social indicators. It is also influenced somewhat by conventional views regarding the monitoring of social change, in which those factors not easily quantified (e.g., value shifts, changing belief structures) tend to be deemphasized. Qualitative indicators can, however, have profound effects on societal evolution. We have discussed only three which seem to be among the most important; others could have been chosen as well.

In considering the information in this chapter, it is important to note how national trends relate to those which can be observed in Pennsylvania. From the specific comparisons made throughout this chapter, the conclusion follows that there are no major differences between national

developments and those taking place in Pennsylvania. However, those trends which are troubling at a national level (e.g., unemployment and underemployment, unequal income distribution, migration from the Northeast) are even more troubling within Pennsylvania.

Reading this report, you must decide which trends are most applicable for your particular purposes and whether the range presented here is broad enough. Your beliefs about overall *patterns* of change will influence your perceptions about the meaning of individual *components* of that process. Conversely, an awareness of component trends can serve as a frame of reference for clarifying and reevaluating your beliefs about overall patterns.

Before reading the following four chapters of this report, you may want to review the five scenarios contained in Appendix A. Do they seem to represent a sufficiently broad range of possibilities, given the likely societal developments described? Which of the scenarios seems most probable to you? Which seems most desirable? What additional scenarios would you construct to describe the range of possibilities for the decade ahead? Consideration of these questions will involve integrating the descriptions of component trends with your own beliefs about change.

The decade ahead will bring changes in many of the basic, underlying assumptions on which education planning has been based. These developments will have broad, structural implications, as well as effects on specific, short-term decisions. The "ripples" will be felt in all four areas of concern represented by the present task forces for the Master Plan.

II. EQUAL EDUCATIONAL OPPORTUNITY AND QUALITY EDUCATION ==

Societal developments likely to affect equal educational opportunity and quality education are best discussed separately. While the two areas do overlap in some cases, it is not a simple relationship. The tie between equal educational opportunity and quality education is based on the assumption that when measures are taken to ensure one, something happens to the other. A number of critics of equal educational opportunity programs have drawn direct connections with educational quality,* but there is wide debate about the appropriateness of this link. For purposes of this chapter, we will treat the two topics individually. Those areas of overlap which do arise will be considered as examples, rather than frameworks for discussion. The topics to be explored in this chapter include the following:

- Varied needs of student and faculty groups, including older students, women students, minority/low income students, and handicapped students
- Problems of recruitment, access, and continuing involvement of varied student groups in postsecondary education
- Definitions and measurement of "quality" in postsecondary education
- The changing nature of quality education

*Several books and articles have been written about equal educational opportunity and the declining quality of education, including Richard A. Lester, *Antibias Regulation of Universities*, prepared for the Carnegie Commission on Higher Education, New York: McGraw-Hill Book Company, 1974; Sidney Hook and Miro Todorovich, "The Tyranny of Reverse Discrimination," *Change*, Winter 1975-76, pp. 42-3; and Thomas Sowell, "Affirmative Action Reconsidered," *The Public Interest*, vol. 42, Winter 1976, pp. 47-65.

EQUALITY OF OPPORTUNITY

In order to place equal educational opportunity into an appropriate societal context, from which implications for postsecondary education can be drawn, the term should be operationally defined. The idea goes beyond the Educational Opportunity Programs (EOP) run by the Federal Government through states. These programs provide financial aid and, in some cases, counseling services to "disadvantaged" young people. On a theoretical plane, equal educational opportunity essentially involves persons who have been targets or victims of discrimination because of age, race, ethnicity, sex, or some other ascribed characteristic. While Title VII of the Civil Rights Act of 1964 forms the foundation for the concept, other federal moves should be cited as progressions of commitments to equal educational opportunity.* While concerns of low-income, minority students defined the domain of equal educational opportunity in the mid-1960s, affirmative action and the end to any kind of discrimination now form essential components of the concept.

EQUAL OPPORTUNITY FOR FACULTY

Equal educational opportunity has implications for the status of persons employed by colleges and universities (or who might be employed by such institutions), as well as for current and potential students. Many colleges, universities, and state systems have long held some kind of commitment to equalizing opportunities to learn. These same organizations have often been ineffective, however, in putting together and implementing affirmative action plans for faculty. Also, institutions that have made some efforts to

*Title IX of the Educational Amendments of 1972, Revised Order Number 4, Executive Order 11246 (as amended by Executive Order 11375), and the "Handicapped Regulations." The guidelines for Section 504 of the Rehabilitation Act of 1973 took effect on June 3, 1977, and compliance is required of institutions receiving federal funds within 60 days of that date. Other laws have some bearing on the provision of equal educational opportunity; examples are the Equal Credit Act as it applies to educational loans and the Equal Pay Act.

hire female and/or minority faculty sometimes do so without holding an appropriate search, actions that derail true affirmative action processes.*

Since its advent, there has been more confusion about affirmative action than useful information. For instance, "quotas" were employed for hiring and admissions; they have now been determined to be illegal. However, many organizations continue to use quotas (generally on an informal basis), particularly because the concept of goals (which replaced "quotas") does not seem very different from the original dictum. The essential outcome of the quota approach is a "product," while the goal orientation emphasizes "process." Enthusiastic, but careful, application of goals ensures that affirmative action is taking place.

Extrapolating from recent experience, it appears more important for postsecondary institutions that lines of communication be built among various departments and services than that an elaborate office for affirmative action be established. While it is useful--and sometimes necessary--to have a central base of information which is identifiable and accessible, awareness of affirmative action needs to be cultivated in all parts of the institution. Many informal department actions will never involve an institution's affirmative action officer but have definite implications for affirmative action goals.

As more guidelines are issued by the government and more court decisions handed down, the responsibilities of colleges and universities are likely to become clearer vis-a-vis affirmative action. However, these changes will require greater attentiveness than ever before and even more emphasis on the ability of institutions to communicate information effectively to their constituents.

*Recruitment or well-run searches are an integral part of any program designed according to the original philosophy of affirmative action. Inappropriate, inadequate searches (or hiring without a reasonable search) only compound the problems of unequal opportunity. Minority and women's groups are not satisfied by this approach; neither are traditional opponents of affirmative action. If an unqualified or less-qualified person is hired for a position as a result of this type of action, critics have more ammunition with which to bombard equal opportunity programs; qualified persons are passed over; and no one gains in the long run.

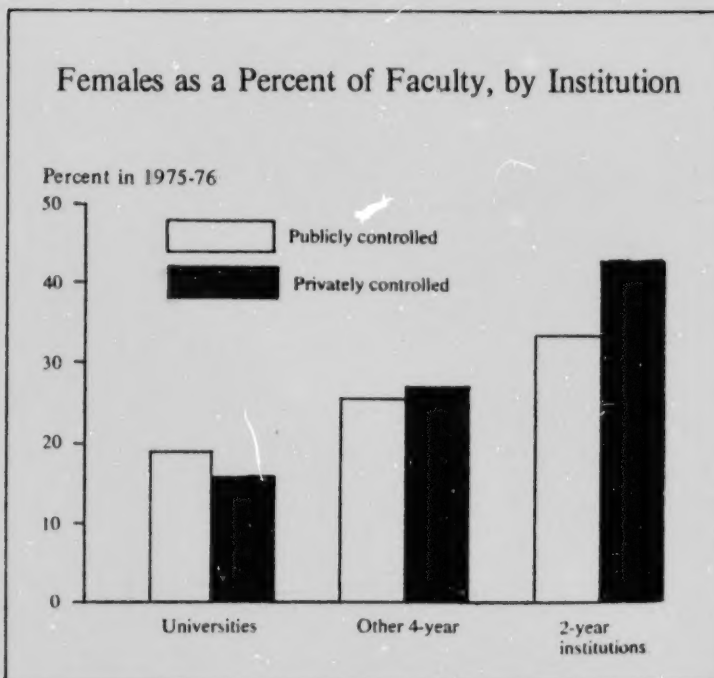
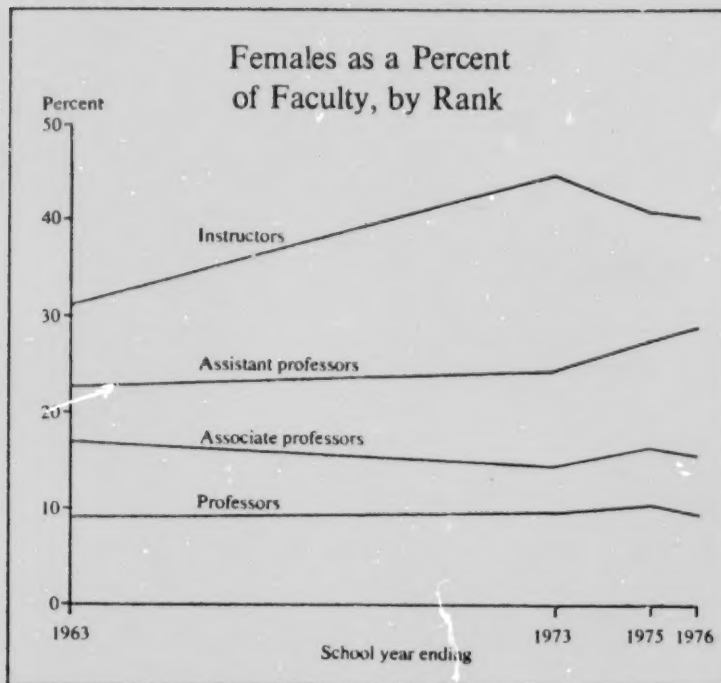
The labor force participation rates of women and minorities have increased significantly since 1950, but they still do not approach that of white men. This pattern has been reflected in faculty hiring in postsecondary education. While women and minorities were being hired in larger numbers for instructional positions in the late 1960s, the general slowdown of the economy--combined with declining enrollments (and "steady state" constraints) in the early 1970s--slowed this trend considerably. Minority and women faculty are more likely to be found in two-year institutions than in universities or other four-year institutions. With the market for college faculty in a situation of "oversupply," however, the prospects for better jobs in academe--and perhaps elsewhere--do not appear favorable for women or minorities. Even part-time positions, formerly shunned by "serious academics," are in short supply and become the focus of rigorous competition (see Figure 38). The comment, "We'd like to hire you, but we have to hire a woman or minority," seemed to be the theme of the late 1960s and into the 1970s. Statistics show, however, that what was perceived as reality then was mostly fiction and is becoming more so as the years go by. Many women may be interviewed, but few are hired.

In Pennsylvania, the patterns for women follow those for the United States as a whole:* although female faculty members are approaching male \$ faculty in terms of salary, particularly in the associate and assistant professor ranks, inequity is obvious in the absolute numbers of women employed on all levels. In all segments of postsecondary education in Pennsylvania, and at all ranks, males far outnumber females** (see Figure 39).

*For distribution of women and minorities in academe on the national level, see Carnegie Commission on Higher Education, *Opportunities for Women in Higher Education*, New York: McGraw-Hill Book Company, Table 7, 1973, p. 111; Appendix A, Table A-19, pp. 194-5; and "Women at Successive Levels of Higher Education by Field and Type of Institution," Appendix C, Table C-2, pp. 200-1.

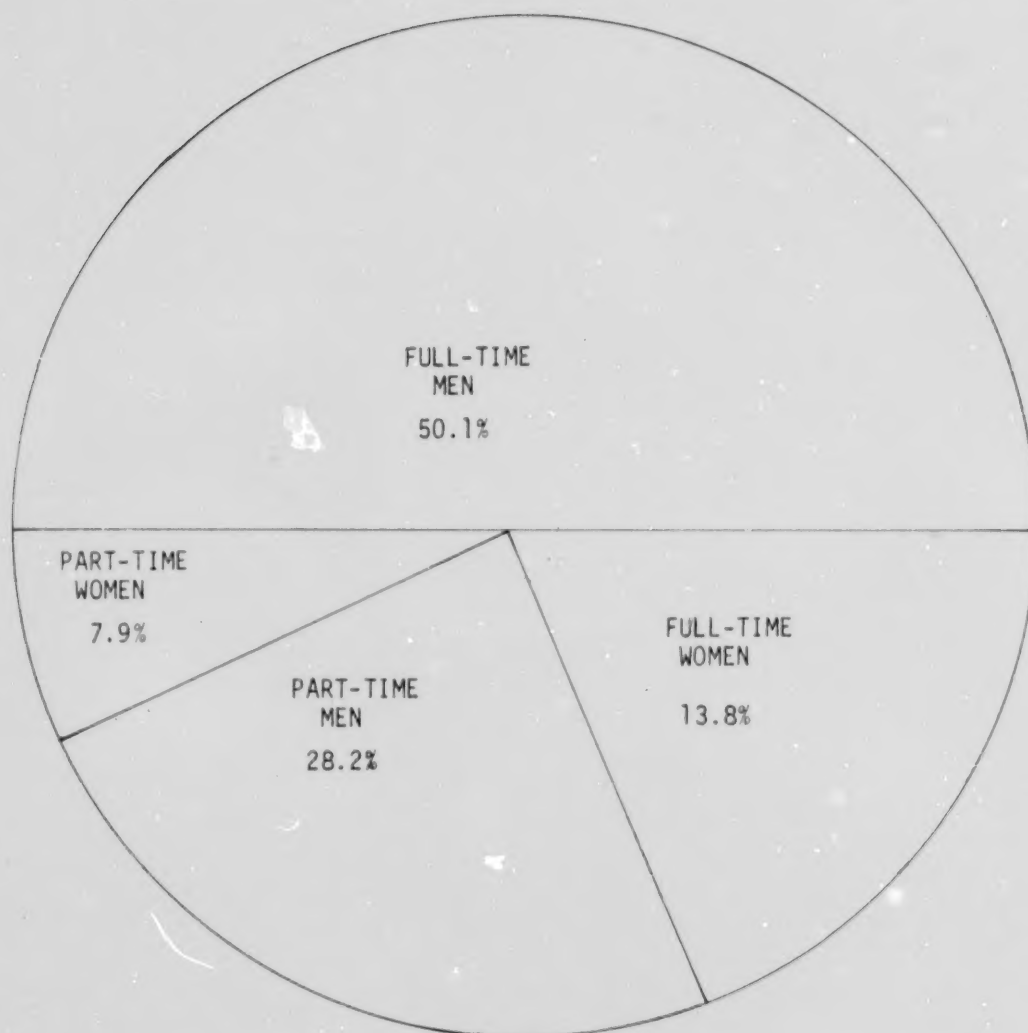
**Roger D. Hummel, *Our Colleges and Universities Today: Faculty and Other Personnel at Pennsylvania Institutions of Higher Education, 1975-76*, Pennsylvania Department of Education, vol. 13, no. 7, 1976, p. 15. As of March 1977, the Pennsylvania Department of Education did not have instructional personnel in postsecondary education disaggregated by race.

FIGURE 38.*



*Statistics on women faculty from *The Condition of Education*, National Center for Education Statistics, Table 6.14, 1976 edition, p. 138.

FIGURE 39. INSTRUCTIONAL STAFF BY EMPLOYMENT
STATUS AND SEX, PENNSYLVANIA
COLLEGES AND UNIVERSITIES, FALL 1975*



*Our Colleges and Universities Today: Faculty and Other Personnel at Pennsylvania Institutions of Higher Education, 1975-76, Pennsylvania Department of Education, vol. 13, no. 1, 1976, p. 8.

The reasons often given for the underrepresentation of women and minorities in faculty positions are questionable in view of the current supply and demand situation. The number of credentialed female and minority applicants has been slowly but steadily increasing in the past 10 years (more in some fields, such as education and the social sciences, than in others), and the number of positions available has declined. Therefore, the potential for recruiting minority or women faculty should be more favorably balanced.*

OPPORTUNITY FOR STUDENTS

For students, equal educational opportunity means the chance to participate in postsecondary education without restraints due to characteristics such as age, sex, race, or ethnicity (or a combination of traits).** While we might expect that societal components such as unemployment, income distribution, and rates of labor force participation are likely to affect college attendance, their impacts should not be aggravated through discrimination.

Older Students: No Longer Excluded

With the exception of the attendance of war veterans financed by the GI Bill, postsecondary education has been for young persons, usually 18- to 22-years-of-age. This category was given priority for years, whether it was through formal regulations (as in the case of many graduate programs),

*Charles Andersen, ed., "Estimated Employment in 1974 and Average Openings in Selected Occupations, 1974-85," and "Supply and Demand for Doctorates, 1972-1985," *A Fact Book on Higher Education*, American Council on Education, Washington, DC, 1976, pp. 76.54-76.55.

**The apparent rekindling of interests in one's own ethnic heritage and "roots" may also affect student interests. EEO could be expanded to include not only providing equal access to existing educational programs, but also providing programs uniquely geared to the ethnic heritages of particular student groups (e.g., an increased need for bilingual programs or programs in ethnic history or customs). While interest in "roots" may be only a current fad prompted by Alex Haley's book and the television series, it could also be an indicator of a deeper sense of interest to retain the strained ties between the modern present and the ethnic past.

or implied policy (all services, including dormitory living, were designed for young persons).

For a number of reasons (perhaps the least of which is the outlawing of an age criterion for admission), age restrictions are disappearing from college campuses. In times of declining enrollments of "traditional college age" learners, wooing older students is not only desirable but may be necessary for survival. As the median age of the United States rises, recruitment of "mature" students is bound to increase. But while most institutions are putting forth considerable effort to attract older students, it appears that little attention is being paid to their retention. Older students
\$ have very different needs from students with whom most institutions are
★ familiar; while they may have access to learning environments, their success may be hindered by lack of support services.

An area in which needs appear to be particularly pressing and likely to continue is placement of older women after graduation. Postsecondary institutions have the opportunity to respond to these persons, strengthening the interaction between schools and communities. Although exemplary "reentry" programs are operating throughout the country, emphasis has usually been placed on the preparation of the student as an assertive, resourceful person. That person is then catapulted into a community which views older women, often with limited paid working experience, as noncandidates for jobs.

Colleges and universities might do well to expand their focus to include preparation of the community to accept and nurture these older students. While reinforcing their commitment to equal educational opportunity, schools would also be fulfilling a community service function. One might ask whether older persons are really given equal educational opportunity.*

Women and Minority Students:

The Need for Continuing Support

For females and low income/minority persons, the attainment of equal educational opportunity involves both access to and success in some form

*The needs and expectations of older students are addressed at some length in Chapter III, "Programs and Services."

of postsecondary education. Commitment to these concepts requires, particularly with respect to minority/low income students, some type of outreach program. Many minority persons do not meet basic eligibility criteria for postsecondary education because they are high school dropouts.* Lower enrollment rates among minorities do not necessarily reflect lack of interest in education; lack of funding and lack of support services contribute to their low representation.**

For females, lower enrollment and lower retention is a more complex problem. According to traditional measures, many females "should" attend and succeed in college (that is, they or their families have sufficient high incomes; they have test scores and grades that are high; and they are more likely than males to complete high school). However, the dropout rate from postsecondary education for female high school graduates is sizable. Attitudes of college instructors and administrators, high school counselors, parents, and females themselves (resulting from years of socialization into "appropriate" roles and aspirations) do not give positive reinforcement to the achievements of female students. The problem of female student retention persists across racial lines: between 1970 and 1974, 65 percent of all black females and 48 percent of white females dropped out of postsecondary institutions (the percentages for males were 52 for blacks and 40 for whites).***

*In 1974, 19 percent of all blacks aged 16 to 21 were high school dropouts. See Elizabeth A. Abramowitz, "More Promises than Progress," *IS Monitor*, Institute for the Study of Educational Policy, Washington, D.C., December 1976, p. 2.

**While blacks made up 11.4 percent of the U.S. population, they constituted 9 percent of college enrollees in 1974. In Pennsylvania, blacks and other nonwhites were 8.9 percent of the state's population in 1974; in the group aged 18 to 21, the percentage was higher (9.6), but black and nonwhite enrollment in postsecondary education was 7.0 percent of the total (6.8 percent in 1974). These statistics were derived from Abramowitz, *op. cit.*; *Pennsylvania Higher Education Enrollment Planning Projections, Report*, Pennsylvania Department of Education, Office of Higher Education, 1974, p. 14; and *Fall College Enrollments by Racial/Ethnic Categories and Associate and Higher Degrees Conferred by Racial/Ethnic Categories, 1973-74*, Pennsylvania Department of Education, 1975, p. 6.

***Abramowitz, *op. cit.*

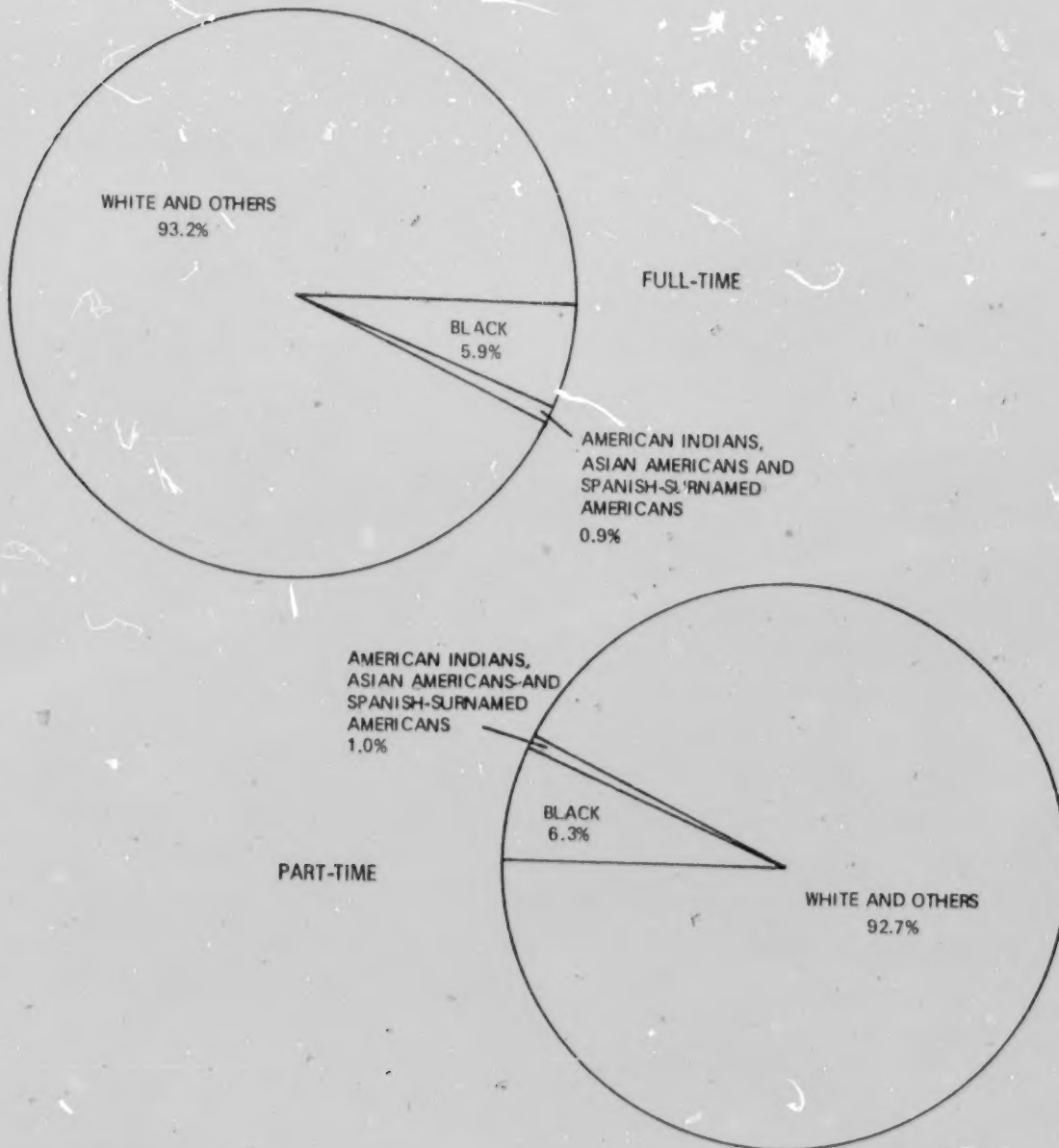
Women who complete bachelors' degrees and decide to go on to graduate school often find academe less than friendly to them. Although many more women have enrolled in graduate and professional schools in recent years than for the past half-century, their representation has been concentrated at the masters' degree level and in "traditionally-female" subject areas. With perhaps the exception of medicine and law, the absolute increased enrollment of women is diffused over many schools, so that female colleagues and support groups are still scarce. Also, the number of women faculty members available to serve as teachers, advisors, or "role models" is low in most institutions. Women graduate students have few examples of success with whom they can relate easily. Although the argument is made that male faculty can serve as well as female faculty as mentors, women graduate students are sometimes painfully aware of what a number of surveys now document: many male professors feel that female students are less "dedicated," less "serious" than their male counterparts. Unfortunately, this attitude has been translated into proportionately fewer fellowships, research assistantships, and teaching assistantships for women graduate students.*

In 1974, Pennsylvania black students (representing the largest racial minority group in the state), were underrepresented in postsecondary education both as full- and part-time students (see Figure 40). A further concern for those committed to equal educational opportunity is the distribution of minority students among institutions. Six years after the implementation of Act 101, the Higher Education Equal Opportunity Act, by the General Assembly and three years after the issuance of recommendations by the Equal Educational Opportunity Task Force,** the concentration of minority students

*See Carnegie Commission on Higher Education, *Opportunities for Women in Higher Education*, pp. 95-9, for the results of two such surveys.

***Recommendations*, prepared for the Pennsylvania Department of Education by the Equal Educational Opportunity Task Force, February 1974. The Pennsylvania Department of Education's *Revised Plan for Equal Opportunity in the State Colleges and Universities*--submitted to the U.S. Department of Health, Education, and Welfare, Office for Civil Rights, in June 1974--is being revamped and augmented because only one segment of postsecondary education was covered. HEW has requested a revised plan which includes state-related institutions and community colleges. For more detail, see *Chronicle of Higher Education*, vol. 13, no. 19, January 24, 1977, p. 4.

FIGURE 40. FULL-TIME AND PART-TIME ENROLLMENTS
IN INSTITUTIONS OF HIGHER EDUCATION
IN PENNSYLVANIA BY RACE, FALL 1974*



*Source: *Fall College Enrollments by Racial/Ethnic Categories, 1974, and Associate and Higher Degrees Conferred by Racial Ethnic Categories, 1973-74*, Pennsylvania Department of Education, loc. cit.

→ at particular campuses has not changed significantly. In times of slow
★ growth (or declining) enrollments, equal educational opportunity is likely to be more difficult to achieve. Developing a "critical mass" of minority students on a particular campus is not likely to be an easy task during the next decade.

Special admissions programs for low income/minority students are now "under fire" more than ever before. Increasing battles over scarce resources may signal the need for reevaluation and redefinition of programs that were not thoughtfully constructed. When both institutions and students are concerned about investment in education, effort may be put into creating less biased criteria for admission, rather than into bending or circumventing existing standards to achieve greater representation by previously excluded groups.*

Although males would appear to be the least likely group to experience discrimination in academe, their status, too, should be considered by those drafting the Master Plan. While the roles of women are shifting and opportunities emerging for low-income minorities and women, concomitant changes for men are not generally acknowledged or understood. Males are subjected to a more subtle form of discrimination, dictated by current notions of "masculinity." Certain academic disciplines and occupations have been closed to men, not technically but functionally. Men who wanted to go into nursing, child development, or dance, for example, have been dissuaded--or, if they persevered, ridiculed--by both men and women. Within particular fields, men face initial problems very similar to those that confront women in engineering, animal science, and architecture. In terms of services, "traditional" responses to male needs should be reevaluated by postsecondary institutions, much as women's programs have been going through a "rethink." The responses of colleges and universities will be most constructive if major emphasis is placed on *human* liberation, the expansion of opportunities

*In the next decade, criteria for admissions could be broader, more flexible, and more open to "nontraditional" students. The criteria for acceptance need not be based on obsolete, culturally-biased information. CEEB scores and high school grade point averages, for example, need not be primary indicators of success. Such measures would be inappropriate not only for many low income/minority students but also for most older students.

for each person, rather than the piecemeal approaches of the past decade.

Handicapped Students: An Emerging Minority

During the next decade, the participation of handicapped persons in postsecondary education is likely to increase. The handicapped are now organized into a politically-viable group, and their influence will probably be felt by colleges and universities which previously had not been pressed to be responsive to them. Protected now by law, as women and low income/minority persons have been for several years, handicapped students can require that equal educational opportunity be afforded them.*

Although enrollments of handicapped persons in postsecondary education are only beginning to increase, it is likely that significant gains will be made during the next 10 to 15 years. By that time, programs parallel to those affecting postsecondary education will have been implemented on the elementary and secondary levels. When there was little hope of being able to continue into postsecondary education, fewer handicapped persons prepared for attendance.* In the years to come, the pool of students eligible for college enrollment may be much larger than it is today.

While budget and program cuts are the assumed order of the day, consideration may still be given to providing "access" and "choice" in education through commitment to equal opportunity. The United States and Pennsylvania have provided some form of postsecondary education to most of their citizens; now, and through the next decade, changes can be made that encourage education appropriate to every individual's needs.

*Of the 225 colleges and universities that have made their campuses "functionally accessible" to handicapped students, most have found that the changes they have made to accommodate the handicapped benefit other people, too. Older students and children (of students) on many campuses have reacted favorably to the improvements made for handicapped students, as access to facilities is made easier for them, too. See Cheryl M. Fields, "Providing Access for the Disabled: It Won't Be Cheap or Easy," *Chronicle of Higher Education*, vol. 14, no. 4. May 31, 1977, pp. 4-5.

QUALITY OF POSTSECONDARY EDUCATION:

IS THERE A VIABLE DEFINITION?

Quality . . . you know what it is, yet you don't know what it is. But that's self-contradictory. But some things are better than others, that is, they have more quality. But when you try to say what the quality is, apart from the things that have it, it all goes *poof!* There's nothing to talk about. But if you can't say what Quality is, how do you know what it is, or how do you know that it even exists? If no one knows what it is, then for all practical purposes it doesn't exist at all. But for all practical purposes it really *does* exist. What else are the grades based on? Why else would people pay fortunes for some things and throw others in the trash pile? Obviously some things are better than others . . . but what's the "betterness?" . . . So round and round you go, spinning mental wheels and nowhere finding anyplace to get traction. What the hell is Quality? What is it?*

Many studies have been undertaken attempting to define or refine measures of quality; all have met with considerable criticism.** Assessments of quality generally focus on one or two groups or elements of postsecondary education; for example, number of volumes in libraries and faculty, rather than trying to evaluate what the whole enterprise is accomplishing. Studies of quality easily (and regularly) slip into popularity contests and status/prestige competitions; they are rarely used for diagnostic purposes.

Another approach to quality examines the skills which result from education, usually measured by performance tests. In its measurement of learning at a societal level, the National Assessment of Educational Progress

**Zen and the Art of Motorcycle Maintenance*, New York: Bantam Books, copyright 1974 by Robert Pirsig, p. 178.

**These studies include: Allan M. Cartter, *An Assessment of Quality in Graduate Education*, American Council on Education, Washington, DC, 1966; Allan M. Cartter, Lyman Porter, and Lewis C. Solmon, "The Cartter Report on the Leading Schools of Education, Law, and Business," *Change*, February 1977, pp. 44-8; Kenneth Roose and Charles Anderson, 1970 update of the Cartter survey; Rebecca Z. Margulies and Peter M. Blau, "America's Leading Professional Schools," *Change*, November 1973, and a replication in *Change*, Winter 1974-75, pp. 42, 47; and D. E. Drew and R. S. Karpf, *Evaluating Science Departments: A New Index*, The Rand Corporation, Santa Monica, California, Rand Paper 5521, October 1975. The Danforth Foundation and several other organizations have explored the area of faculty quality, and formal and informal reviews of student quality are almost continuous.

illustrates this approach. This project has been a major source of criticisms about student reading ability. In startling headlines, researchers report, "23 Million in U.S. Found Illiterate."* Examining the functional skills of United States adults, the study measured such skills as the ability to read want ads or perform basic mathematics (e.g., for food purchasing). Even this project, operating on a giant HEW budget, does not avoid the problems of *defining* quality. As a front page *New York Times* article stated, "The National Assessment, after having generated 20 million pages of test results, is still criticized for the vagueness of its findings."**

Allan M. Cartter, struggling for many years with the problems of measuring educational quality, reached a simple and insightful conclusion:

In an operational sense, quality is someone's subjective assessment, for there is no way of objectively measuring what is in essence an attribute of value.***

The question becomes, then, what societal developments are likely to affect those attributes which will be valued in postsecondary learning?

Changing Definitions of "Literacy"

The problems of defining quality are closely tied to a gradual realization that basic life skills involve more than the ability to read and write. Social literacy is emerging as a broader notion encompassing the range of personal skills necessary to function in modern society. (Social literacy might also be expanded to include basic communication skills or personal life planning abilities.) Postsecondary institutions have the potential to offer such basic skill development programs.

Social illiteracy may be defined functionally as the difference between what we know and what we "need" to know. The problem is presented by the fact that it is difficult to measure what we know and harder yet to predict what we will need to know.

**New York Times*, October 30, 1975, p. 40.

**Gene I. Maeroff, *New York Times*, October 5, 1975, p. 1.

***Allan M. Cartter, op. cit., p. 4.

If a quality education is thought to be one what enhances social literacy, components of change discussed in Chapter I of this report will likely have much impact on the design of future programs. For instance, labor force participation rates and the pressures of unemployment, underemployment suggest that one element of quality postsecondary education will involve *flexibility*. Since it is not possible to make job-specific predictions about what types of programs will be needed, quality postsecondary education will emphasize those skills which are relevant to more than one employment possibility and help facilitate changes later in one's life. Identification of common threads joining education and jobs will be crucial, as will be the linkage between basic capabilities and those relevant to specific jobs.

Recognition of emerging student and faculty needs will be another component of quality postsecondary education. The qualitative components of change introduced in Chapter I anticipate needs related to increasing personal stress and the complexity of organizational structures. Quality responses to concerns such as these will be vital if postsecondary education is to respond to and influence emerging societal needs.

Quality Standards of Special Groups

The increasing number of older students are likely to have their own demands regarding quality education well-articulated. With a considerable investment in their schooling, they will be concerned that experiences in postsecondary education be worthy of their efforts. Consider, for example, parents who have to negotiate child-care arrangements or working people who sacrifice earnings in order to participate. These are not likely to be passive students; they will be aggressive and critical of programs which do not achieve their expectation for quality. Their standards, and those of other student groups, will be prime determinants in defining basic social literacy and, consequently, educational quality.

It is quite possible that women and low income/minority students will have an impact on the quality of postsecondary education that few critics of their participation would have anticipated. Traditionally, access to education beyond high school has not been available to these groups; they have received negative reinforcement (and incentives) at every turn. As it becomes more and more clear that education does not necessarily translate

into jobs and that women and minorities receive even less guarantee of a return on investment in education, these persons may carefully evaluate the quality of education and take their involvement very seriously. If institutions, on the other hand, fail to provide "quality" education, these "investors" will "vote with their feet" and fund (via tuition payments) colleges and universities which do respond to their expectations. It will be an interesting turn of circumstances if groups who are often expected to affect the quality of education negatively instead contribute significantly to its improvement.

The Tenure Squeeze: A Mixed Effect on Quality

The caliber of faculty and the quality of postsecondary education will interact in a mixed way during the next decade. This situation results from current tenure levels at most institutions, on the one hand, and competition for faculty positions (particularly at the assistant and associate ranks), on the other. It may be that the lack of movement in higher positions will lead to a decline in the quality of education. Tenured faculty members, secure in their positions, may not exhibit the same energy for teaching as younger faculty would. A more age-homogeneous faculty, with an average age of 60, may not be as dynamic as a mixed group. On the other hand, the oversupply of Ph.D.'s, usually viewed only as a serious problem, may actually help to increase the quality of education. Institutions can afford to be selective about faculty hiring, a luxury which they did not have during the 1960s. By "letting the market operate" (along classic supply and demand principles), the best faculty are more likely to be chosen.

CONCLUSION

A number of concerns have been raised in this chapter relating to both equal educational opportunity and quality of postsecondary education:

- The need for equal educational opportunity programs is likely to increase over the next decade, with growing concern over older students, minorities, and the handicapped at both student and

faculty levels. Tight financial resources are likely to both increase pressures for these programs and make it more difficult to develop them. Innovative approaches will be crucial and should be shared among institutions (suggesting a possible role for PACU).

- More workable definitions of "literacy" will be important in defining quality in education. Development of viable indicators of social literacy are basic to this effort.
- Definitions and indicators of "quality" are widely debated and will continue to be so. Practical approaches must be taken to identify those aspects of postsecondary learning which are most valued, given overall patterns of social change. Definitions of quality should be *dynamic* and sensitive to the changing needs and expectations for postsecondary education.
- Emerging societal trends (e.g., increasing numbers of older students and other special groups) could have direct effects on educational quality, many of which are potentially positive.

III. PROGRAMS AND SERVICES ★

"The only discipline worth focusing on for itself is self-discipline."

--Alfred North Whitehead

While Whitehead's words have a timeless quality to them, they appear to be uniquely relevant to planning for programs and services for the next decade. Conventional academic disciplines, at least when they exist in isolation from each other, will almost certainly not be responsive to emerging needs. Continuity will be crucial--continuity with the past and with the future. Ironically, a sense of history may be very important to living in the future. And the students of the next decade, as well as the faculty, are likely to have service needs which vary considerably from those of their predecessors.

Our consideration of societal developments affecting postsecondary programs and services concentrates on three interrelated areas:

- Basic assumptions about learning and knowledge
- Apparent needs for new academic programs
- The changing nature of student (and faculty) services

BACK TO BASICS (The Real Basics)

Michael Marien, writing as a member of the Educational Policy Research Center at Syracuse, has suggested that we are on the verge of adopting a very different attitude toward what we know and what we *don't* know. In a scenario written from the perspective of 1985, Marien "looked back" on the 1970s:

We now recognize that many of the problems of institutional stagnation and loss of authority that occurred during the 1970s could be attributed to "drop-outs" from the non-formal processes of continuing learning. Indeed, convinced that they were knowledgeable by their credentials, many of the elites are now viewed as among the most ignorant in our society, by virtue of what they ought to have learned added to their incapacity to learn. And to think that a decade ago we considered our national manpower problem to be unemployment!*

Marien assumes there will be a realization at a societal level that knowledge is *not* increasing in a simple building-block evolution. Rather, he theorizes, it will be seen that *new knowledge begets new ignorance at an increasing rate and new ignorance demands an accelerating process of learning*. Marien's view is that educationists (and others) need to confront areas of ignorance directly, with an air of humility. Of course, such an argument is very consistent with the spirit of open inquiry toward which universities have pledged themselves. But Marien argues that societal changes call for a commitment at a much stronger level of intensity. Whether or not one accepts the particulars of Marien's argument, this perspective is quite consistent with information about emerging societal developments.

That learning is becoming bound into narrow disciplines or career specialties is already widely recognized. Robert C. Wilburn, President of Indiana University of Pennsylvania, wrote in January of 1977:

The response to student interests and employer demand has led to a fracturing of courses of study into many subspecialties that more nearly reflect the job market. The seven medieval liberal arts have grown to tens of departments each with a multitude of specialties that point students toward such particular areas as journalism with a print specialty, journalism with a media specialty, policy administration, security administration, etc. Such programs are found buried within the more traditional liberal arts departments. Add to this the tremendous growth in occupationally related fields such as the health services, business systems, business management, personnel management, food and nutrition specialist, and so on. It is difficult to briefly describe the splintering that has occurred.**

*Michael Marien, "The Discovery and Decline of the Ignorant Society, 1965-1985," in Thomas Green, ed., *Educational Planning in Perspective*, Guildford, Surrey, England: IPC Science and Technology Press Limited, 1971.

**Robert C. Wilburn, "Tomorrow's Students and the Educational System," Benjamin Franklin Symposium, January 17, 1977.

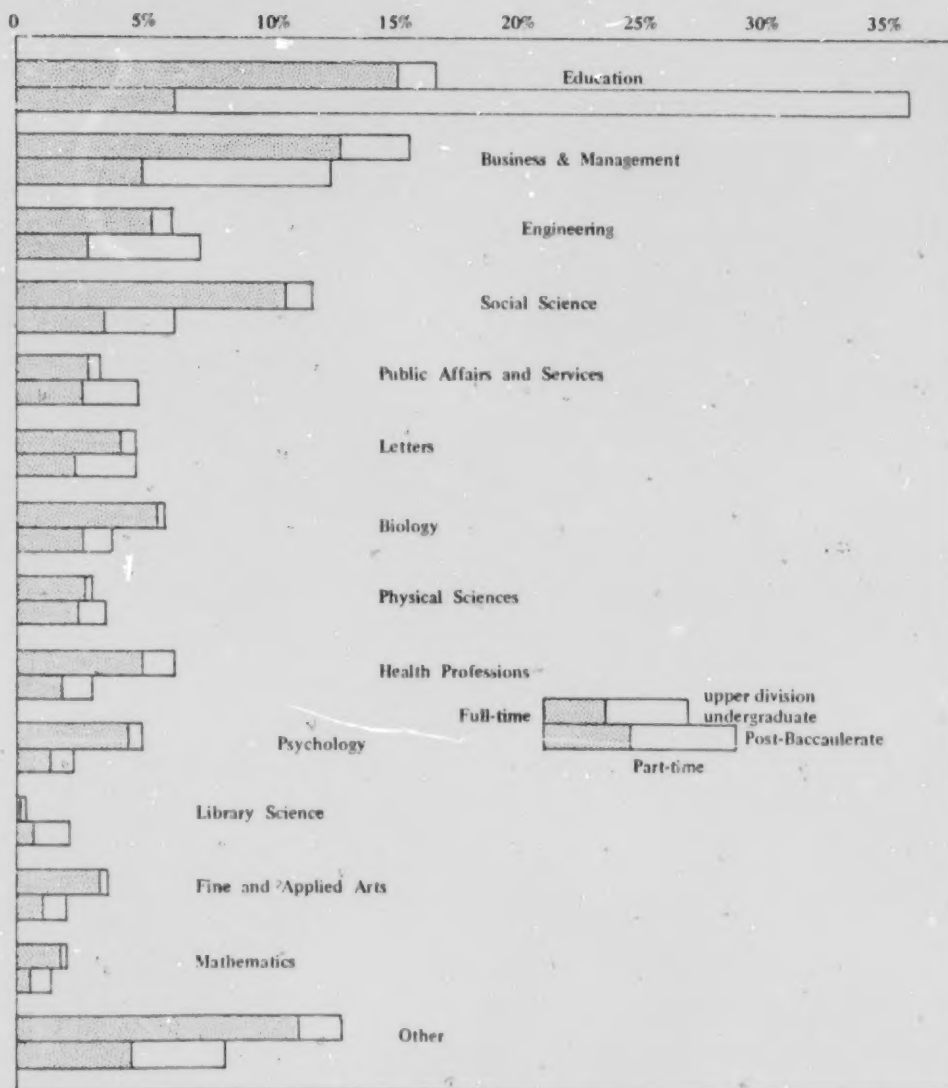
The splintering of academic inquiry appears to be particularly dangerous in the years ahead. Labor force projections are far too unreliable to make precise predictions of which specialties will be most needed. (See the discussion of occupational mix in Chapter I for more detail on the changing character of the work environment.) Figure 41 shows the current distribution of undergraduates in Pennsylvania by degree field. Even at the general, categorical level of this figure (e.g., business and management, social science, public affairs and services), it is difficult to make firm forecasts of those fields most likely to have the greatest future need.

A case in point is the situation which occurred with engineering in the late 1960s and early 1970s. As a result of surpluses (and, consequently, high unemployment) in several specialties in engineering, students and potential students were directed into other fields of study. Three to four years later, the need for engineers was high, but the supply was low. Institutions are still trying to meet the demand for engineering graduates, without returning to the imbalance of the previous period. Looking at more specific fields of study (e.g., banking, insurance, public administration), a precise forecast becomes even more difficult. With such a volatile situation, it seems unwise to be narrow in planning programmatic options. Basic programs for beginning students should emphasize forming a foundation for varied career options. Then, a broad set of flexible programs will need to be geared toward continuing or returning students with changing career needs.

A review of programmatic needs over the next decade must examine closely both the *content* and *process* of various courses of study. Students need a firm foundation of basic knowledge; they need to understand society's movement from what was and is, to what will be. At the same time, students will also need group process skills necessary to work effectively in task-oriented small groups. Such skills have not had sufficient attention thus far; and in the future, changing lifestyles and career fluctuations will make effective communication of ideas and information even more critical.

In the years ahead, new learning opportunities should perhaps be integrated with existing disciplines. While new fields of study continue to appear (e.g., policy studies, future studies, bio-engineering, systems analysis), the adding of new departments or programs seems--in most cases--

FIGURE 41. A PERCENT COMPARISON OF THE UPPER DIVISION UNDERGRADUATE ENROLLMENT WITH THE POSTBACCALAUREATE ENROLLMENT BY DEGREE FIELD, FALL 1975*



*Our Colleges and Universities Today: Upperdivision Undergraduate and Postbaccalaureate Enrollment at Pennsylvania's Institutions of Higher Education, Fall 1975, Pennsylvania Department of Education, vol. 13, no. 3, 1976, p. 16.

ill-advised. These new fields are not "disciplines" in the classical sense. They raise legitimate challenges and offer much to students but should be confronted directly in the context of existing academic program areas. add-on curriculum often tends to avoid issues which should be faced directly.

PROGRAMS FOR CHANGING LIFESTYLES

Lifelong Learning

The current postsecondary program options within Pennsylvania suggest that the kind of flexibility called for by changing societal developments is only beginning to emerge. Table 17 shows a definite increase in the number of registrations in noncredit adult/continuing education programs. However, of the 97 institutions offering such programs, four offer by far the most. Lifelong learning programs are a major example of attempts by educational institutions to adapt to the needs of an increasingly diverse generally older student body. The major societal developments reviewed in this report suggest that the byword for programs for the next decade should be flexibility of both substance and structure.

These are times of declining enrollment of students of "traditional" college age. Continuing education, as a new source for students, serves as a potential balance to this effect. While the move to lifelong learning will likely not help very marginal institutions survive the loss of students, the presence of "mature learners" (over 25 years old) will bring benefits to many campuses that range from new perspectives through financial gains.

*A lesson can be taken from experience with women's studies and black studies programs. In many institutions, particular courses in these areas have not been integrated into traditional departments. Often, faculty members with assignments in established departments staff these new programs and therefore have to split their time (and loyalty) between the two. In the early stages, enthusiasm generally keeps the programs afloat; but as problems arise, such as a need for greater time commitment from faculty or for more funds, these "step-children" are abandoned. Starting new "disciplines" is an appealing tactic in the short run but seems highly questionable over the long term.

TABLE 17. TOTAL REGISTRATIONS IN NONCREDIT ADULT/
CONTINUING EDUCATION INSTRUCTIONAL ACTIVITIES
BY INSTITUTIONAL CATEGORY, 1970-71 - 1975-76*

	<u>1970-71</u>	<u>1971-72</u>	<u>1973-74</u>	<u>1975-76</u>
TOTAL, ALL INSTITUTIONS	229,500	226,587	277,619	393,107
State-Owned Institutions	40,921	33,901	19,870	21,676
State-Related Commonwealth Universities	76,961	82,175	132,491	180,434
Community Colleges	33,857	30,371	74,489	87,095
Private State-Aided Institutions	43,559	43,627	21,252	27,139
Private Colleges and Universities	31,715	32,538	25,485	72,671
Theological Seminaries	2,362	3,407	3,425	2,869
Private Junior Colleges	125	568	607	1,223

NOTE: Data for 1972-73 and 1974-75 were not available.

Under "Private Colleges and Universities," American College data is included in the 1975-76 statistics only.

*"Adult/Continuing Education: Noncredit Activities in Institutions of Higher Education in Pennsylvania, 1975-76," *Our Colleges and Universities Today*, Pennsylvania Department of Education, vol. 14, no. 6, 1977.

The trend towards renewable credentials is likely to further reinforce the move toward lifelong learning. In a variety of specialties in certain states, the renewal of credentials is already a requirement (e.g., nursing, teaching, pharmacy, law). Graduates of programs in these fields are required to participate in approved educational programs, to pass periodic examinations, or to elect a number of courses which they feel are enriching each year. Such a trend seems likely to continue and presents a real opportunity for postsecondary educational institutions to provide comprehensive programs for renewal of practicing professionals.

Intermediate Technology: One Example of
Emerging Trends with Program Implications

Although manpower forecasts are not sufficiently reliable to be used as the basis for program planning, it is possible to identify what appear to be emerging societal developments with direct programmatic implications.

→ As an example, we suggest the notion of intermediate technology with a particular focus on related aspects of self-sufficiency. While other examples could be given, it is our judgment that this emerging trend has an unusual timeliness for society in general and for Pennsylvania.

E. F. Schumacher's book *Small is Beautiful** has raised the possibility of a shift toward values of self-sufficiency and "appropriate" (or "intermediate") technology. Self-sufficiency means a new interest in family gardening, solar heating, waterless toilets, and a host of other small-scale technologies to make the household independent of costly goods and services. A more recent book, *Home, Inc.*** by Scott Burns, takes the case further by suggesting that we are already experiencing a significant shift from market economy to household economy. Households are creating an independence from market structures by contributing their own labors to produce a growing portion of their personal needs. Such a trend, if it should continue,***

*New York: Harper & Row, 1973.

**New York: Doubleday and Co., Inc., 1975.

***It is difficult to assess now the extent of potential commitment to intermediate technology; however, it does seem safe to say that many people are at least aware of the concept and, in the future, will accept its implications for a combination of philosophical and economic reasons.

could have profound effects on U.S. society--far beyond the small-scale effects on individual households.

A movement toward self-sufficiency could have many effects on the state of Pennsylvania, most of which appear to be positive. Household-based economies could provide a basic security in rural areas where people, particularly the young, have been forced to leave in search of salaries and could allow family members to be involved in varied careers and life experiences. None of these promises is assured, but there is reasonable hope for revitalization of economic structures where a greater portion of household needs are produced from within.

The growing interest in intermediate technology and self-sufficiency opens a broad range of educational program possibilities. The skills of household self-sufficiency are undeveloped in most people; even those who know some techniques can benefit from insights provided by new intermediate technologies. For instance, the Integral Urban House* is testing practical means for making a household of four persons as self-sufficient as possible. On the assumption that household members also have work or other activities outside the home, the project works toward the smallest time commitment possible. Efficient gardening, alternative energy sources, small animal care, and a host of other activities are currently being field tested. The results are then made public via reports and workshops at the Urban House. Other such efforts around the country are making techniques for increasing self-sufficiency much more available.** These techniques could be adapted to fit with existing programs, particularly in institutions that already

*1516 - 5th Street, Berkeley, CA 94710.

**A growing number of local activities have begun all around the United States. Several organizations and newsletter/journals now exist, including: RAIN: *Journal of Appropriate Technology*, 2270 N.W. Irving, Portland, OR 97210; The New Alchemy Institute, P.O. Box 432, Woods Hole, MA 02543; *Self-Reliance*, The Institute for Local Self-Reliance, 1717 - 18th Street, NW, Washington, DC 20009; and the *Farallones Institute Newsletter*, 15290 Coleman Valley Road, Occidental, CA 95465. The above journals are available for reasonable costs and provide a way of tracking developments in this important field. For a more general introduction, see Godfrey Boyle and Peter Harper, *Radical Technology*, New York: Pantheon Books, 1976.

have courses in agricultural and environmental studies and applied behavioral sciences. It seems feasible that engineering management and social sciences might benefit if perspectives of "small scale" economies were integrated into them. Continuing education programs might offer training in these techniques to students who "missed out" on them during their previous academic training. Courses based on intermediate technology and self-sufficiency principles might be recommended as necessary knowledge, much as Western civilization, American institutions, and English literature are now.

Learning to Relax, Relaxing to Learn:

Tapping Inner Resources

→ Increasing personal stress is likely to affect individuals in the future. An important qualitative component of change (see Chapter 1), this societal development has a double implication for education. First, there
== will be a need for programs which help people learn to reduce personal anxiety and cope with a changing world. In addition, some of these same techniques can be employed to facilitate the overall learning process.

Over the next 10 years, there is likely to be an increasing interest in exploring the inner processes of the human mind and their relation to everyday behavior. Contemporary movements such as Transcendental Meditation (TM), yoga, astrology, humanistic psychology, body therapies, and biofeedback have attracted the interest of citizens whose backgrounds vary widely. The collective aim of these philosophies is to promote a basic sense of relaxation and well-being among practitioners. Their techniques attempt to synthesize mind and body to produce a sense of "alert" relaxation--a prime state for learning.

Two examples of learning techniques based on relaxation are provided by *suggestology* and *biofeedback*. Developed by Dr. Georgi Lozonov in Bulgaria during the early 1960s, suggestology claims to dramatically increase learning speed and retention. In contrast to rigid structural exercises designed to transfer material from teacher to student, suggestology uses the classroom as a stage on which real-life situations are enacted. Effortless relaxation--similar to the state achieved in yoga--follows presentation of the material. Muscle tension is relaxed, and the brain is relieved of the

usual anxieties and stresses which interfere with learning. Students leave with a calm, intuitive perception of the material presented.

Experiments with Lozonov's method show dramatic increases in the speed of learning, retention rates, and even enjoyment of the learning process itself. His work is, of course, controversial and still not fully validated. While systematic testing of his hypotheses is certainly possible, educational researchers have not risen to the task. However, suggestology is currently being used for courses in Bulgaria, as well as in Canada and in the United States.* And whether or not Lozonov's techniques per se prove to be correct, there is much within his general approach which seems promising. He is exploring the fundamentals of learning, and such explorations are likely to increase in importance over the next decade.

Other methods of facilitating relaxation can also be applied to learning situations. Biofeedback training is an example. Using machines which indicate variation between states of relaxation and tension, students can gain detailed information about body/mind processes which they have never sensed and certainly not consciously controlled.

Biofeedback is still in its early stages of development and is far from fully tested. The potential here is for a technology directed toward the internal environment rather than merely the external world. Biofeedback is a promising example of humans controlling natural processes to expand their learning and living potential.**

*A general description of Lozonov's work is contained in Sheila Ostrander and Lyn Schroeder, introduction by Ivan T. Sanderson, *Psychic Discoveries behind the Iron Curtain*, Englewood Cliffs, NJ: Prentice-Hall, Inc., 1970. A newsletter on current Canadian activities is available from Suggestopaedia-Canada, Room 420, Aselford-Martin Building, 1725 Woodward Drive, Ottawa, Canada K1A 0M7. The United States activities are monitored by The Society for Suggestive Accelerative Learning and Teaching, P.O. Box 1815, Des Moines, IA 50306.

**See, for example, Francine Butler, *Biofeedback and Self-Regulation; A Bibliography*, Biofeedback Research Society, Denver, Colorado, 1973; Barbara B. Brown, *New Mind, New Body; Biofeedback--New Directions for the Mind*, New York: Harper & Row, 1974; and Marvin Karlins, *Biofeedback: Turning on the Power of Your Mind*, Philadelphia, PA: J. B. Lippincott Company, 1972.

The potential for educational application of techniques such as these is far from assured. At present, there is very little interest in such ideas among educational research communities. Ignoring them, however, may be costly to education; furthermore, it invites the informal adoption of perhaps disreputable schemes. A strong "crap-detecting"* orientation should be encouraged, to extract from the range of newly-publicized options those elements which are most useful to teaching and learning processes.

Flexible Substance, Flexible Structure

Societal developments over the next decade could cut deeply at the essence of programs offered by postsecondary educational institutions. The aging population will have dynamic career training needs, with many persons likely to experience multiple careers. The dynamic nature of family structure will require greater flexibility in order to increase access to educational resources. It is already becoming apparent that institutions are willing to make adjustments to "nontraditional" (as they are now called) students' needs (e.g., increased availability of late afternoon and early morning classes, the use of storefront and "satellite" campuses that are more convenient to students, and the offering of part-time status by colleges and universities that have previously required full-time attendance). The recognition of increased personal stress as a likely societal development has implications for academic training, as well as the more obvious ties it has with student services. Preparing students to deal with stress may prove to be as important as providing services to handle its effects.

The Programs and Services Task Force will thus have to face basic questions about the types of educational preparation most suited to the coming decade. Such a basic reassessment of educational programs might be guided by the insightful prod by Professor Irving Buchen that education needs to develop ways of "going ahead while catching up."** This will not be an easy

*As used by Neil Postman and Charles Weingarten in *Teaching as a Subversive Activity*, New York: Delacorte, 1969.

**Professor Buchen is currently leading a project to examine the role of education in New Jersey over the next decade. Papers from his project are still in progress, but will be available from the New Jersey Department of Education, Trenton, New Jersey.

task, but it does promise to provide insight into the changing purposes and priorities of postsecondary education.

EVOLUTION OF SERVICES FOR STUDENTS AND FACULTY

When the topic of services in postsecondary education is considered, the focus is usually upon students. During the next decade, the needs of students will certainly require a great deal of attention; however, faculty will require consideration too.

From the standpoint of student services, the next decade will be a transition period. Societal developments in several areas seem likely to have particularly strong effects on student services. Each of the traditional student services (e.g., counseling, placement, financial aid) will be confronted with basic changes in operating conditions.

Counseling for Changing Student Needs

The large increase in older students, many of whom are women, raises unique counseling needs. Older students generally have very different approaches to postsecondary education from their younger counterparts. Most will not need guidance in "choosing a major" or encouragement to confer with faculty. They may need help adjusting to their new environment and changing status as well as much more sophisticated career counseling. Older students are likely to need auxiliary services that are not traditional for postsecondary education: their health care requirements are usually quite different from those of an 18-year-old, and living accommodations on campuses (dormitories and married student housing) are, for the most part, not appropriate for older students.*

*One attempt to respond to this situation is represented by a program for adult learners in postsecondary education which was initiated by the Pennsylvania Department of Education. Under the sponsorship of the Fund for the Improvement of Postsecondary Education (1975-76 academic year), a project focused on easing the transition of older learners into educational settings, promoting their retention, and eventually helping them adjust into careers. Support of individual learners, an important element of the program, was provided primarily through counseling and services available in the Philadelphia and Bethlehem area libraries. See *Resources for Change - A Guide to Projects 1975-1976*, Fund for Improvement of Postsecondary Education, p. 99.

As the roles of women change, the services they require as students are also undergoing a transition. Many women students over the next decade are likely to have children and be family heads. Different kinds of advisory programs will be important to this group, with less emphasis on traditional academic advising, often done by faculty members, and more focus on "lifestyle" and career-advising and information exchange. This work, usually \$ done by counseling professionals, will call for more than giving a faculty member an "extra hat" to wear. Student mothers (or fathers), working or not, will depend on institutions having child care available.

Another group of students, the handicapped, will be "newcomers" to post-secondary education with needs that require still other services. With the signing of the regulations for Section 504 of the Rehabilitation Act of == 1973,* the entrance of handicapped people into colleges and universities has been eased to some extent. Although remedial action is not being required of institutions, it is clear that fairly significant changes in the provision of courses and services will be necessary (e.g., equipment for classes, training of faculty, and housing). For the first time, handicapped persons are organized into a powerful interest group. They are seeking equal treatment and now have support and protection under the law.

Regarding employment guidance for graduates, the "good job" and "promotion" squeezes discussed in Chapter 1 suggest that career counseling and → job placement will be a much more difficult task. Counselors and students will be "shooting at a moving target" as they struggle to match personal interests and skills with employment possibilities. As Ivar Berg has noted, part of the counseling redirection will involve reducing initial expectations about employability.** It must, however, move beyond reducing expectations to plotting personal alternatives. Career counseling will need to be broadened to include life planning, as students explore the opportunities to blend their interests with their needs. The range of full- and

*These regulations became official on April 28, 1977, after numerous revisions were made. It should be noted that Section 504 also covers employment; that is, that colleges and universities may not discriminate on the basis of handicaps in the hiring of faculty and staff.

**Ivar Berg, op. cit.

part-time career opportunities need to be explored, as well as alternative ways to provide basic economic support for career options, such as art, which may provide poor remuneration. "New Ways to Work,"* a California counseling/placement organization, blends these functions in a way which is likely to become more common and more necessary. The service focuses particularly on job-sharing and relies heavily on group counseling.

The counseling function described here will be difficult and demanding, requiring well-trained counselors with access to many resources. An important first step is to change our basic assumptions about career counseling. "Jobs" and "careers" have been defined more narrowly than the next decade will allow. If student counseling programs are to prepare students for this world, the range of options and approaches must be expanded considerably.

Faculty Services

While the turnover in faculty during the next decade may not be great, the changes in their environments are likely to be significant.** During this period, attention may be given to re-addressing "old" needs (such as teacher training) and attending to "new" needs (e.g., advising for faculty members).

Enrollment demands no longer require the churning out of new faculty. In light of the fact that today's nontraditional students will likely become the norm by 1990, time could be spent retraining current faculty. Workshops on effective teaching in colleges and universities could be offered, including emphasis on communication skills (e.g., group processes, facilitation). This area usually receives little attention. Faculty might also learn more

*457 Kingsley Avenue, Palo Alto, CA 94301.

**This anticipated low faculty turnover is based upon the assumptions that most colleges and universities are tenured to capacity and that these tenured faculty, for the most part (even allowing for early retirement), have from 5 to 15 years left for teaching; that the rate (and number) of faculty new-hires will remain low; and that the preparation for teaching of present and potential faculty members (persons with recent graduate school experience) will be similar.

about resources available on campus and in the community that could be useful in light of changing student and faculty needs. They could, with appropriate preparation, act as referral agents or members of counseling teams.

§ The increasing availability and use of technology in education will require new attitudes and skills on the part of many faculty members who are not now "technologically literate." It is likely, for example, that computer terminals and other telecommunications equipment will have routine use among persons in the social sciences and humanities, in addition to their current use in the sciences and mathematics.

== Increasing personal stress will confront faculty members, and they will need training and support to deal with it. It seems likely that displacement of instructional personnel will continue to occur; the effects of this development might be decreased, if faculty members are prepared to respond with alternatives. A program begun in Pennsylvania last year attempts to address the need for new options. The Pennsylvania State College Educational Services Trust, still in its infancy, takes faculty development further than most development projects: to the identification of future personnel needs and retraining of faculty to meet those requirements.*

Many of these suggested programs might be most efficiently taught during initial faculty training in graduate school. It can be argued that it is difficult to know which students will actually become teachers; however, this concern can be dealt with in a number of ways. It seems reasonable that "technological literacy" and ability to deal with stress are skills that might benefit an individual regardless of his or her position.

Programs and services in the next decade will need to be responsive to new populations and environments, both on and off the campus. Fundamental questions about traditional academic programs (and majors) are likely to be concerns, as well as the preparation of faculty to teach them. Major reevaluations of services for students appear necessary; services which were

*"State Trust Helps Retrain Pennsylvania Teachers," *Chronicle of Higher Education*, vol. 7, no. 19, July 19, 1976, p. 4.

maintained for decades without significant changes no longer seem appropriate. An examination of attitudes about faculty training and the functions of faculty in the context of societal developments might also yield useful information for improving teaching and the quality of both students' and faculty members' lives.

IN SUMMARY

The preceding analysis of societal developments likely to affect post-secondary programs and services raises a series of concerns:

- A recognition of our own "ignorance" in understanding societal problems may be necessary as a first step to dealing with them creatively.
- Attention to a new set of "basics," such as critical thinking ability, a sense of history, or group process skills may be more important than emphasis on conventional academic disciplines.
- Precise manpower forecasting is probably not a realistic basis for program planning, but overall areas of change which are possible (e.g., intermediate technology) might become the basis for new programs.
- Both students and faculty are likely to have service needs typically not offered at educational institutions (e.g., "lifestyle" counseling, child care). Particular groups (e.g., older students, women, handicapped) will press for the fulfillment of their own special needs.
- Faculty retraining will be more crucial than preparation of new faculty. Creative ways of renewing faculty members will be very important.
- Educational institutions will have great needs for clever ways to "go ahead while catching up." Exchange of these ideas could be a crucial function for organizations like PACU.

IV. DELIVERY SYSTEMS →

The delivery of postsecondary educational services involves governance, coordination, and mission of institutions. In this chapter, we will adopt this broad definition of "delivery" in exploring societal developments likely to affect delivery systems within postsecondary education.* The topics to be discussed in this chapter include:

- Citizen participation in governance of postsecondary education
- The increased importance of systematic planning procedures
- The changing nature of mission for postsecondary education
- Technological resources for delivery of educational programs and services

The first two of these topics relate directly to both governance and coordination of postsecondary education. It is especially hard to isolate coordination from related functions, such as governance. For purposes of this chapter, we have not attempted to make such a separation. Societal developments affecting governance and coordination are discussed initially, followed by a consideration of the changing nature of missions for postsecondary education. Finally, specific techniques for facilitating the actual delivery of educational programs and services are discussed.

GOVERNANCE AND COORDINATION

The Importance of Citizen Participation

Governance and coordination of postsecondary education could be influenced by national trends toward increased citizen participation in public

*The title of this chapter and the definition of "delivery systems" used here parallel those adopted by the master planning task force of the same name.

polycymaking. Traditionally, citizens have participated in government primarily through their ballots. In the case of postsecondary education, this participation has been reflected in the public's choice of those who make budget decisions (the legislature and governor) for public institutions; election of alumni representatives to boards of trustees (often done for private institutions); or even "voting" a preference against a college or university by leaving. Now, a growing interest in more direct citizen involvement with public policy issues will have important implications for education.

The increased number of referenda in those states allowing citizens to place initiatives on the ballot is one indicator of the expanded desire for direct citizen participation in political decision-making. Increasing citizen interest in shaping future social and economic developments has also found expression in such movements as Hawaii 2000, Iowa 2000, and Alternatives for Washington.* These endeavors involve numerous citizens in assessing the implications of alternative policies and subsequently expressing their choice of desired goals. The U.S. Congress has also shown an increased interest in citizen participation efforts--particularly those with an expressed futures orientation.** The current administration in Washington, D.C., is placing a great deal of emphasis on citizen involvement in policy formation. While

*See, for instance, the report, *Alternatives for Washington*, Office of Program Planning and Fiscal Management, State of Washington, House Office Building, Olympia, WA 98504, 1975. For a survey of various state planning projects, see David Baker, "State Goals Groups: Performance and Potential," *World Future Society Bulletin*, March-April 1976. This article includes descriptions and addresses for 19 state goals groups. See also Alden Lind, "The Future of Citizen Involvement," *The Futurist*, December 1975, and Alvin Toffler, "What is Anticipatory Democracy?," *The Futurist*, October 1975.

**See, for instance, the Congressional Clearinghouse on the Future newsletter, called *What's Next?* This newsletter emphasizes the role of citizens in exploring and planning for alternative futures and is available from: Anne Cheatham, Director, Congressional Clearinghouse on the Future, 303 House Annex #1, Washington, DC 20515. In 1974, the House adopted a foresight provision requiring that most standing committees "on a continuing basis undertake futures research and forecasting on matters within the jurisdiction of that committee" (U.S. House of Representatives, H. R. 988, October 8, 1974).

many of the projects can be termed "symbolic gestures," a tone of interest in citizen opinion is being set by holding town meetings and "call-ins" that encourage public participation.

Economist Wassily Leontief has called for the presentation of alternative national economic scenarios for public debate; the final choice of national priorities would be made through the political process.* Each scenario would offer alternative packages of goods and services. One might place priority on greater employment and environmental clean-up, for example, while another might be geared to expanding the quantity of consumer goods.

A key issue is whether public involvement in future planning can be more directly linked to decisions made by legislatures and regulatory bodies. Such links might include expansion of the referenda process (although extending referenda procedures to the national level would probably require a constitutional amendment). If alternative national economic plans were presented by the major political parties during election campaigns, national planning might be more responsive to the public interest. However, the ★ methods for participatory planning are still rather crude (often merely questionnaires or large meetings). And these methods are often poorly linked--or even threatening--to existing legislative bodies.

The growth of public participation in postsecondary education is reflected in citizen representation on at least three levels: individual institutions' boards of trustees (or governing boards), state governing boards, and advisory boards to postsecondary systems (1202 Commission membership.)**

*For a discussion of Leontief's proposals, see his article, "National Economic Planning: Methods and Problems," *Challenge*, July/August 1976, pp. 6-11. The U.S. Department of Commerce, Bureau of the Census, has a publication entitled *Census Data for Community Action* (September 1976) which is available to individuals or groups who would like to use census data for analyzing problems in their neighborhoods and planning appropriate programs. The government is beginning to supply "tools" for citizens to facilitate their involvement and give reinforcement to their activities.

**An examination of the rosters of 1202 Commissions reveals an emphasis upon good representation from the general public as well as from legislative groups and institutional segments.

Many colleges and universities now have student, staff, and faculty representatives on their governing boards, and a number of state systems' boards have student members (for example, the University of California's Board of Regents).

Participatory or Not, Planning Will Increase in Importance

Whether or not one agrees that an increase in citizen participation in planning is actually beginning to occur, other social forces suggest an increased role for planning within postsecondary education. Financial constraints are a most pressing issue; they call for explicit documentation of operating procedures, routinely done in the business and industrial world but not always required of educational organizations. Scarce resources, including the possibility of a decline in the number of students (at least full-time students), will require more cooperation by institutions and segments. Facilities could be shared in order to maximize services for students and communities and faculty could be shared by institutions located near each other.* But sharing of resources implies a basic recognition of emerging need, and it is at this point where considerable uncertainty exists regarding the most appropriate methods which might be used.

Unfortunately, pressures for planning often result in very narrow, focused efforts which have limited value. Most organizations now have at least one person nominally in charge of "planning." Yet this designation is often used to describe very specific activities. As Lahav has noted,

Educational planners have been content to forecast the number of third grade students in Oshkosh in the year 2000. What these students will be learning in Oshkosh has been largely irrelevant to the purposes of planning. In fact, planners have not even asked themselves if there will be an Oshkosh in the year 2000, or even if there should be an Oshkosh.**

*Many colleges and universities in Pennsylvania are currently involved in sharing resources or more formal consortia. For an inventory of these programs, see *A Design for Regionalization in Higher Education*, Pennsylvania Department of Education, Bureau of Planning, Office of Higher Education, Appendix, 1973.

**See Ron Lahav, "Futurology and Education: Four Futurologists and Their Theories of Education," *Journal of Educational Thought*, vol. 7, no. 1, April 1973, p. 63. The article examines the educational goals implicit in the futures imagined by Buckminster Fuller, Jacques Ellul, Herman Kahn, and Alvin Toffler.

The availability and use of program planning techniques, such as PERT (Program Evaluation and Review Technique) and PPBS (Planning-Programming-Budgeting System), have subtly encouraged an overemphasis on mechanics and detail.* The relative sophistication of the techniques has actually been somewhat harmful to comprehensive consideration of educational futures. It is tempting to use only data called for by a particular technique and, further, to omit examination of the assumptions present in those data. Even though the techniques are often well-developed and employ quantified models, the tactical planning processes they facilitate are far from comprehensive. Also, each slightly new technique is typically given a completely new name--often an acronym. This practice makes the situation particularly confusing to novices because the label masks the overlaps in existing methods.**

Planning in Practice: Mixed Reviews

Under coordinating commissions mandated by Section 1202 of the 1972 Education Amendments, many states have undertaken comprehensive assessments of postsecondary education needs and resources and developed integrated planning bodies to coordinate both public and private sectors of postsecondary education. The work is done by the commissions themselves, when staff resources are sufficient, or contracted out to organizations such as the Educational Testing Service (ETS). The Berkeley, California, office of ETS recently completed a study on educational needs of adults for the California Legislature.*** This study considers how adult learning needs are likely to

*PPBS may be moving into a renaissance period after several years of declining popularity, with the Carter administration emphasis on a PPBS component, zero-base budgeting. For two perspectives on the technique, see Phillip L. Zweig, "White House MBA's: Budget Cutting Begins at Home," *MBA*, vol. 2, no. 5, May 1977, pp. 25-30; and a comprehensive critique by Leonard Merewitz and Stephen M. Sosnick, *The Budget's New Clothes*, Chicago: Markham Publishing Company, 1971.

**For more detail on the issues surrounding the use of long-range planning techniques in education, see Robert Johansen and Patricia Samuel, "Futurology Applied to Education," *Educational Technology*, vol. 17, no. 4, April 1977.

***Richard E. Peterson and J. B. Lon Hefferlin, *Postsecondary Alternatives to Meet the Educational Needs of California's Adults*, Sacramento, California, 1975.

grow through the remainder of the century, given demographic trends and expected industrial development. Educational services presently provided within the state are examined, and unmet needs are pinpointed. The study concludes with recommendations for meeting these needs, including changes in existing institutions, new educational services which should be established, and mechanisms for improving planning.

The Washington State plan, *Planning and Policy Recommendations for Washington Postsecondary Education, 1976-82*,* is another example of a comprehensive approach to educational planning. After defining its authors' assumptions about the future, the plan examines anticipated future developments (particularly population changes) likely to affect postsecondary education in the state. The document then examines present and potential educational offerings from the perspective of four broad goals: responsiveness, access, diversity, and coordination. Recommendations for future action conclude the plan.

In the next decade, the role of state planning commissions might extend to comprehensive evaluation of alternative educational strategies and subsequent elimination of those found to be less efficient and less effective § (it should be noted that some state education agencies have already begun to assume this function). For example, if improved vocational training could be obtained at a lower cost by subsidizing employers to assume this responsibility, educational institutions might be precluded from investing resources in such programs.**

★ On the national level, increased planning for postsecondary education could mean that future directions will be more explicitly linked to other aspects of national policy. For instance, under national planning, educational decision-making would be more closely tied with regional development = priorities and economic production goals. Manpower forecasting for better career counseling would also become more plausible within the framework of

*Council for Postsecondary Education, Olympia, Washington, 1976.

**Educational programs sponsored and conducted by business and industry are discussed further in Chapter V, "Finance."

comprehensive national planning. At present, precise manpower needs are very difficult to foresee. The absence of a long-range plan targeting future output in such areas as medical services, energy production, and transportation facilities makes it virtually impossible to formulate plans for training the required number of personnel, such as doctors, solar engineers, or airplane mechanics.

Comprehensive planning in its varied forms provides a challenge to past procedures. Such a challenge could certainly be healthy and--especially at first glance--looks very appealing. However, bureaucracy plus planning doesn't often equal vitality. The sluggish 5- and 10-year plans of the Soviet Union provide insight into the weaknesses of national planning as well as the capacity of planning for getting some things accomplished. Overemphasis on planning can limit one's options and invite missed opportunities. Its systematic strengths can be manifested as bureaucratic rigidities. Also, too much trust in mechanical planning procedures can lead one to forget the impossibility of predicting the future. Second or third order effects, often completely unexpected, can be the demise of the best laid plans. Planning techniques must be tempered by judgment and humility if they are to be flexible and, consequently, effective.

CHANGING MISSION FOR POSTSECONDARY INSTITUTIONS

A New Look at Credentials

The "mission" of postsecondary institutions has traditionally involved the provision of credentials and, to a greater extent in recent years, continuing education and credit for experiential learning. However, social forces are beginning to reshape the credentialling system.

Traditionally, diplomas from educational institutions have served as entrees to "better" jobs, and credentialling has been based on credit hours and grades. Recently, the forces for equal opportunity have been battering at this tradition; many argue that it unfairly denies opportunity to able

people deprived of higher education opportunities due to past discrimination. Two approaches to dealing with this problem have emerged. One, based on court rulings in *Griggs v. Duke Power*, is to substitute performance tests (measuring skills appropriate to the position) for degrees or diplomas as job selection criteria. The other approach maintains educational credentials as prerequisites for many occupations but opens access by giving credentials for experience. Thus, those who are barred by circumstances from traditional college curricula would earn degrees by alternative and less time-consuming methods.

The biggest single factor motivating people to engage in postsecondary education is often the desire for job advancement. What will happen to the educational market if occupational entrance is no longer dependent on traditional educational credentials? Assuming that specific performance tests are substituted for degrees and diplomas, the majority might still choose to prepare for the tests by studying in an educational institution. However, the function of the institution would change. The traditional certification that a student had completed an appropriate regimen of course work would yield to individualized, competency-based curricula. Furthermore, formal educational institutions might face competition from other sources. With "ability to perform" as the standard, there is no inherent advantage in attending an accredited educational institution. A YWCA, proprietary school, or master tutor with a demonstrated record at preparing persons to pass performance examinations will all attract students.

The second approach, which maintains the importance of educational credits but acknowledges experience as a surrogate for classroom learning, will also alter the nature of educational institutions. Institutions or government agencies will need to establish agencies which provide, evaluate, and certify various types of nontraditional learning. Personnel to supervise internships will have to be provided; examinations to test prior learning will have to be designed; and the academic merit of various life experiences will need to be assessed. In the years ahead, alternative paths to degrees and the proportion of nontraditional students will increase. The

educational bureaucracy, based on standard units and standard procedures, will be subject to increasing strain. Institutions will have to be flexible enough to allow for dealing with these changes in their missions.

Changes in mission will also be brought about by diverse needs of students and their individual reasons for seeking postsecondary education. Future manpower needs provide a basis for examining this consideration.

Although it is difficult to assess manpower needs through 1990, some "sense" of occupational requirements and job availability can be determined.* For example, given what we know about demographics and the supply of teachers, we can be reasonably sure that there will not be a need to invest heavily in the training of teachers during the next decade. In a time when resources are scarce in education and in general, programs and institutions that continue to exist based primarily on tradition rather than principles of supply and demand are economic liabilities and need to carefully evaluate their purposes. Therefore, when the missions of colleges and universities are redefined and subsequently translated into programs, consideration of the "occupational mix" component is crucial.

A warning against almost exclusive reliance on "manpower" or "supply-and-demand" types of approaches should be issued. Many fields of study are likely to come under attack as being superfluous because their graduates generally do not find jobs in their fields. For instance, while it is true that many English and history majors work as bank tellers or store clerks, that fact does not mean that their training was necessarily inappropriate or not useful. While it is essential to construct institutional (or segmental) missions in the context of likely occupational mix, it is also important to allow individuals to choose education that meets their own needs. Students may choose majors for personal or intellectual reasons, not necessarily to prepare themselves for a given career.

These warnings about duplication on the one hand and overreliance on manpower forecasts on the other are especially critical where graduate

*See "Occupational Mix" in Chapter I.

education is concerned. Advanced education is usually quite expensive, being both capital and labor intensive; and, therefore, should be placed under financial scrutiny. Evaluation of program quality and societal needs will help determine how much investment should be made in graduate education and research. Although the existence of graduate programs tends to give prestige to institutions, the funds might be better spent (in some cases) for continuing or community education. In terms of system survival, the state might consider emphasizing graduate education and research at a certain (relatively small) number of schools, while restricting others from offering education beyond the baccalaureate. The goal of this type of evaluation would be to assure excellence at a reasonable number of colleges and universities and eliminate mediocrity, perhaps *before* it becomes a problem. The balance must be struck among access, excess, and excellence of programs.

Geographic Effects on Mission

Changes in the geographic distribution of the population also have fairly strong implications for the mission of postsecondary institutions. As more people begin to move from metropolitan to nonmetropolitan areas, colleges and universities will have to adjust their emphases: liberal arts programs geared toward urban and suburban lifestyles might be complemented by (or in some cases replaced by) programs focusing on agricultural and environmental training. In Pennsylvania, although the move is definitely toward

★ nonmetropolitan areas, very few institutions have programs focused on life skills for nonurban environments.* The colleges and universities located in nonmetropolitan areas, particularly those with strong emphasis on liberal arts and education degrees, might explore the feasibility and usefulness of

\$ providing alternative programs.

*In agriculture, Pennsylvania State University (Penn State) and Delaware Valley College of Science and Agriculture have at least bachelor degree programs; and Williamsport Community College offers an associate degree in agriculture. Penn State and the University of Pittsburgh have programs in natural resources. (Other institutions may have courses in these fields but do not have majors/specialties available.) See *A Design for Regionalization in Higher Education*, Pennsylvania Department of Education, Bureau of Planning, Office of Higher Education, Appendix, 1973.

Institutions whose current missions call for commitment to public service and continuing education (in Pennsylvania, particularly the commonwealth universities and the state-owned colleges and universities) should seriously consider the changing needs of the public as a result of geographic redistribution. Institutions whose courses and services are located on a central campus may have to consider the substance of extension or lifelong learning programs they are going to offer and determine how education can be best provided: perhaps through additional campuses, library learning centers, or increased and more creative use of technology. A number of the same considerations that apply to changes in the location of students (and potential students) have implications for older students, handicapped students, and students who are also parents.

TECHNIQUES TO FACILITATE DELIVERY OF POSTSECONDARY EDUCATION

As the needs and geographic distribution of students change, new methods for delivering education to them will need to be considered.

Table 18 displays the principal location of national, nontraditional programs across varied types of students. The types of students indicated here are likely to become more common over the next decade, and varied media will be needed in order to reach them effectively. Though most of the non-traditional programs shown in Table 18 are still based on the home campus, a range of media are used to facilitate their delivery. An effective matching of programs, students, and media will be crucial if delivery capacity is to be fully used.* It could also suggest possibilities for coordination among institutions. During the next decade, many students may not be willing or able to live on campuses or commute to them several days each week. They will want flexible ways of gaining access to educational resources.

*A simple structure for matching curricula with available media is contained in Edward C. Cavert, *Procedures for the Design of Mediated Instruction*, State University of Nebraska Project, Lincoln, Nebraska, 1972.

TABLE 18. PRINCIPAL LOCATION OF NONTRADITIONAL PROGRAMS FOR SPECIAL STUDENT TYPES*

Principal location	Traditional students (323)	Housewives and workers (291)	Special occupational groups (264)	Independent learners of all ages (193)	Unemployed and economically disadvantaged (166)	Confined or beyond commuting distance (116)	Military personnel (89)	All programs (641)
Main campus	40%	35%	26%	36%	41%	9%	22%	35%
In the field	15	11	14	11	15	14	12	13
Regional learning center	10	13	14	7	11	15	17	13
Business or industrial site	6	4	13	6	2	2	6	7
Community center, agency, library	4	8	8	6	7	9	5	6
Home	3	9	1	11	4	16	9	5
Multiple principal locations	15	14	14	18	15	15	12	9
Other location	7	6	10	5	5	20	17	12
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%

*Janet Ruyle and Lucy Ann Geiselman, "Nontraditional Opportunities and Programs," in K. Patricia Cross, ed., *Planning Non-Traditional Programs*, San Francisco: Jossey-Bass, 1974, p. 77.

While educational technologies have been oversold and underutilized in the past, some limited-scale mechanisms may increase in importance as educational resources.

The telephone is one example. Learners in remote locations or those who are hampered by handicaps usually have access to telephones. These telephones could connect them to other learners and information sources if adequate programs were available. The telephone handset which is now so common may be only the beginning stage in telephone-delivered education. Written messages, drawings, computer signals, and several other kinds of messages can also be transmitted along inexpensive telephone lines. Even still pictures of students and teachers--a "slow-scan" television--can be exchanged. With this kind of power, the telephone can provide a "classroom" for about 25 cents an hour* which is convenient for many people who would not attend a traditional institution.

The push for greater access to education through technology has not always existed; it is a more recent theme in educational circles.** In the past, when remotely located learners were considered, the telephone was overlooked as a means of delivery. That the telephone is now being taken more seriously as an educational resource is a sign of the times: making better use of existing technologies is preferable to building completely new ones.

Use of the telephone in postsecondary education is only one example of a variety of technologies likely to be used over the next decade. Home

*This is the operating cost (not including the instructor's time) estimated for the largest of the teaching-by-telephone systems, the University of Wisconsin-Extension (over 25,000 students per year). See Lorne A. Parker and Betsy Riccomini, eds., *The Status of the Telephone in Education*, Madison: University of Wisconsin-Extension Press, 1976, p. 5.

**Evaluations of when, where, and for whom teleconference teaching is most applicable have only begun to occur. ("Teleconferencing" refers to group communication which occurs through some electronic medium such as audio, video, or computer-based teleconferencing.) Social evaluations of the use of teleconferencing for remote meetings are summarized in Robert Johansen, Jacques Vallee, and Kathleen Spangler, *The Camelia Report: A Study of Technical Alternatives and Social Choices in Teleconferencing*, Institute for the Future, Report R-37, 1977.

computers, TV "games," and other such novelties may also have educational potential if properly used. Radically new educational technologies do not seem probable for the near future, but innovative uses of existing technologies seem promising. Communications, whether for reaching the "new rural" student or coordinating activities among geographically separated institutions, will have an important role to play for those who take advantage of their potential.

CONCLUSION

A series of concerns have been raised in this chapter, all of which relate to the general area of delivery systems as defined in this chapter:

- Societal movements toward increased citizen participation are likely to affect governance of postsecondary education. Development of effective means for citizen involvement will be crucial.
- Systematic planning procedures are likely to increase in importance, but many such approaches are overly narrow and restrictive. Planning must be systematic, but it must also be extremely flexible to deal with societal developments of the next decade.
- Current questions about missions of postsecondary education treat *basic* issues (e.g., the relation of education, credentials, and work). These questions must be answered for postsecondary education *as a whole* as well as for individual institutions.
- The likely predominance of a rural, older student body during the next decade raises fundamental questions about *which* institutions will be able to reach these students effectively.
- Technologies could help in the delivery of educational programs and services; for the near future, the most promising possibilities involve innovative use of existing, inexpensive mechanisms.

V. FINANCE §

Financing of postsecondary education can be viewed from at least two different points of view: that of educational institutions ("producers") and that of current or potential students ("consumers"). From each of these viewpoints, one must also consider revenues (sources of funds) and expenditures (the ways in which funds are spent). Defining the societal developments likely to affect the financing of postsecondary education is indeed a difficult task. However, the following areas can be assessed to form a basis for policy decisions:

- Sources of institutional support for postsecondary education
- Likely financial constraints on educational programs and services
- Factors affecting financial support for students
- The economic value of postsecondary education

SUPPORT FOR POSTSECONDARY INSTITUTIONS:

FOR DIFFERENT REASONS, FROM DIFFERENT SOURCES?

The status of support for postsecondary education is closely related to the state of the economy as a whole. During periods of fairly rapid growth of GNP and increasing incomes such as the 1960s provided, postsecondary education fared well. Funds were available for liberal financial aid, new departments and services, and expansion of faculty and staff. Money seemed to flow without tight constraints from federal and state governments and the private sector to institutions and students, who in turn invested it in providing and consuming postsecondary education.

It appears, however, that the tone for the period through 1990 is being set during the 1970s. The growth of GNP is likely to be considerably slower, with accompanying lags in income rise. Consequently, support for

postsecondary education may be increasingly difficult to muster. Changes in the allocation of tax revenues, with different interests fighting for shares of a "slow-growth" pie, will have implications for postsecondary education through the next decade. Some of these in fact are already being felt. For example, increments in federal program allocations fail to or barely cover inflationary rises in expenditures.

Because of the slower growth of the U.S. population during the next decade (and the almost negligible growth of Pennsylvania's population for the next 15 years), the demand for new facilities on college and university campuses will decline even more than it has during the mid-1970s. While some amount of money will be needed to maintain buildings, little funding will be necessary for new facilities. The impact of the more slowly-growing population on needs for facilities will be reinforced by the increasing median age: fewer people of traditional college age will be available to fill traditional dormitories and classrooms. Institutions will have little justification for allocating funds for capital expenses. Thus, an important means for generating financial support in the 1960s will be lost.

Voluntary Support Follows Economic Trends

The funding of postsecondary education through gifts from the private sector (foundations, business, alumni, and friends of institutions) appears to follow economic trends very closely. Therefore, monitoring economic components is crucial to the work of postsecondary education planners. In recent years, times of economic expansion have boded well for institutions, while periods of recession have seen giving decline significantly. Losses were exacerbated by sharp drops in the worth of stock portfolios. A case in point: private donations are now beginning to increase after a slump which coincided with the dismal economic situation of the early 1970s.* The current upswing in giving may move more slowly than earlier ones, however, because the growth of the economy is considerably slower than a

*For a summary of recent trends in voluntary support to colleges and universities, see "Three Economic Indicators for U.S. Higher Education," *Chronicle of Higher Education*, vol. 14, no. 10, May 2, 1977, p. 4.

decade ago. The rate is not likely to increase significantly through 1990.*

Corporate-Sponsored Education:

A Big Question Mark

Support for postsecondary education in the form of academic programs is forthcoming from business and industry, but it may not go to educational institutions. A number of corporations have begun continuing education programs at their own locations, while others offer tuition stipends or rebates for courses taken at traditional institutions. The reason given for offering industry-sponsored/industry-run programs, which are expensive in terms of start-up, is that they are convenient (offered in the workplace) and more appropriate to workers' backgrounds and needs. Student advising is done by trained professionals who are knowledgeable about the workers' environments. Many businesses feel that, in the long run, they get a greater return from this kind of investment. On the other side of the coin are companies (and unions) which encourage workers with financial incentives to attend courses at local educational institutions. They do so with the belief that colleges are equipped--while businesses are not--to serve an educational function. They see benefits, moreover, in the employee's leaving the workplace and going to a different setting.

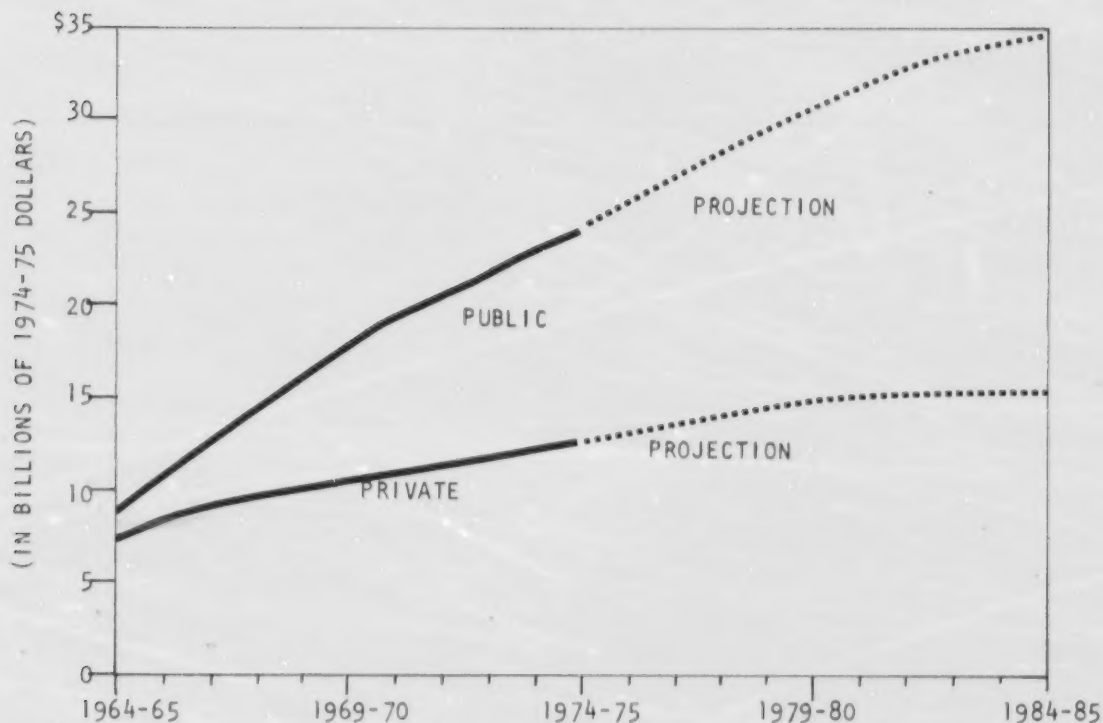
The dominance of one of these directions over the other will have important implications for the financial conditions of postsecondary education institutions. If business and industry opt for their own programs, the funds that will no longer be available to institutions will be significant. For individual institutions, the loss of enrollments, part- and full-time, would be debilitating. The possible drop in corporate gifts and eventual loss of alumni support would have long-term effects on financing for postsecondary education. On the other hand, business and industry might increase their investment in traditional institutions, if initial costs for company courses are judged to be prohibitive.

*See Chapter I for discussion of GNP, income distribution, and other economic components.

FINANCIAL CONSTRAINTS: HERE TO STAY

In the last 10 years, the costs of providing education have increased by 42 percent (from \$2,163 per student in 1964 to \$3,070 in 1974), and they are projected to be 32 percent higher in the next decade.* Capital outlay for both public and private institutions has been decreasing steadily since the 1969-70 academic year; the decline is projected to continue. Despite this trend, current spending is expected to increase through 1985 (see Figure 42).

FIGURE 42. SPENDING IN POSTSECONDARY EDUCATION**



*"The Cost of Educating," *Chronicle of Higher Education*, vol. 12, no. 4, March 22, 1976, p. 22; and "Private Colleges Report Holding Their Own in Competing with Their Public Counterparts," *New York Times*, May 27, 1977, p. A9.

**"The Cost of Educating," *Chronicle of Higher Education*, p. 5.

Tuition, although beginning to slow down after several years of sizable increases, has arrived at a level that seriously concerns students and parents.* In record numbers, students are taking on part-time jobs in order to help cover the costs of college attendance; their wages may only allow them access to a local community college. Financial aid programs have grown, too, but generally not in direct proportion to the costs of college attendance. An important choice will confront policy-makers during the next decade. Should a goal of postsecondary education finance plans be to provide students with an array of experiences from which to choose (by subsidizing institutions and/or students); or, in a time of limited resources, should the state take the responsibility of monitoring manpower needs and the supply of graduates and adjusting programs to fit those projections? Should institutions be allowed or, in some cases, encouraged to survive because they already exist or because they contribute to "educational diversity"?

In order to determine appropriate categories and levels of expenditures for postsecondary education during the next decade, planners might consider tracing the geographic distribution of students and their changing age and sex distribution. Also, the current and potential occupational mix of their region and the country in general should be surveyed. It seems likely that the allocation of institutional revenues will be altered significantly by 1990.

STUDENT FINANCING: NEW STUDENTS' NEEDS

UNMET BY OLD FINANCING METHODS

Since the predominant age group in 1990 will be adults of 25 to 45 years of age, the concept of "college student" will need to change from that of a teenager or young adult attending an institution for the usual four-year

*The average increase for the 1976-77 academic year was 8 percent for public and private institutions; see *Chronicle of Higher Education*, vol. 12, no. 6, April 5, 1976, p. 1. The shift toward smaller households (see Chapter I of this report) with larger discretionary incomes could mean more money available for education. Larger families, with proportionately smaller amounts of discretionary incomes, could have increased problems in paying for educational services.

period to a person of any age interested in learning. Otherwise, enrollments--which translate into funding--will decrease significantly. Presently, on the national level, 14 percent of all first-year college students are 25 years old or older. In the state of Pennsylvania, although information is not quantified, the trend is similar.*

★ Several indicators support the notion that the adult life cycle is not likely to be divided into discrete age segments but will, instead, be evolutionary. The need for continuing education or lifelong learning will be strong. The case for funding continuing education will be more credible. No longer a "bail out" for institutions with declining enrollments, continuing education will be seen to fit new adult lifestyles. In Pennsylvania, postsecondary education remains primarily for persons who attend colleges or universities for a discrete period (usually four years of undergraduate school), with little attention given to lifelong learning. For both institutions and students, little support is given to these types of educational experiences. Tuition and fees generally cover only the costs of the courses offered** and negligible financial assistance is offered. At this time, neither grants to schools nor grants (vouchers, scholarships) to students are easily available for continuing education courses.

== While the arguments wage back and forth about the effects of tuition on access to postsecondary education, recent research conducted by the University of Wisconsin concerning participation of older students gives support to low tuition proponents. In this survey of 57,000 urban adults (all older than 25 years), it was found that tuition rates have a major

*The Pennsylvania Department of Education does not regularly collect information on "older" students, but data available from the 1960 and 1970 census breakdowns for Pennsylvania indicate that the pattern being established for the United States is developing in Pennsylvania also. In 1960, 3.5 percent of persons aged 25 to 34 were in postsecondary institutions; in 1970, 5.1 percent of 25- to 34-year-olds were enrolled.

**This situation is unlike tuition costs for regular courses in the state-owned and state-related institutions, which are heavily subsidized; the cost of instruction is generally much higher than the tuition charged.

role in the decision to attend college.* Pennsylvania's population is shifting in much the same way as that of the United States as a whole; the allocation of educational resources will need to be reevaluated in the context of the trend toward older students.

Some suggest that "the market be allowed to operate"; that is, that costs for postsecondary education should be borne entirely by students, and that students ("consumers") should make decisions about the types of services they need and want. Proponents of this type of financing arrangement also propose that some form of guidelines be drawn that determines when and how marginal institutions should "disappear." As requirements for services other than education (particularly postsecondary education) increase, this position of "market determination" will likely find more supporters.

Financial Needs of Women Students

The changing roles of women will require alternatives on the student ("consumer") side of postsecondary education finance that have not been considered important before.** Traditionally, loans for women have not been considered a common option for financing education. Women did not usually hold jobs for very long after graduation (if they did graduate), and they were concentrated in low-skill and low-paying positions. Women assiduously avoided loan plans; stories about "negative dowries" were the

*For example, an increase in tuition from \$200 to \$400 per semester can cut the number of married adults attending college by about 25 percent. See "Where Adults Are Concerned, the Tuition Hike Fountain May Soon Run Dry," *Behavior Today*, May 16, 1977, pp. 5-6. For more information on the tuition/attendance balance, see research applying methodology similar to that of the Wisconsin survey but with a more "traditional" college-age sample: *Pennsylvania Higher Education Enrollment Planning Projections, Phase II Report*, Pennsylvania Department of Education, Bureau of Planning, October 1975, pp. 3, 27-9.

**As women become a larger part of the labor force, they are more likely to continue their education, at least part-time. This "investment" may be the consequence of a variety of factors, including recognizing a need for further training, and of having more capital to invest in their own education. Nevertheless, the greater participation of women in the work force is likely to have a significant impact on the financing of postsecondary education during the next decade.

norm. During the late 1960s and into the 1970s, while loan programs were becoming more and more popular, women generally lagged in participation.*

However, as college attendance became more important to women and some kind of postcollege work experience the rule rather than the exception, loans became a less threatening means of paying for education. A number of institutions and states are now providing more variations on basic loan schemes which make borrowing more attractive to students who had previously shunned loan programs.**

More Self-Sufficient Students?

Children growing up today, who will be of "traditional student" age in 1990, will also require services different from those usually offered by colleges and universities; alternative programs will save institutions money in some areas, while others will cost a great deal. Children who grow up ★ without much access to their parents are likely to be quite self-sufficient. They may reject programs with in loco parentis overtones, such as requirements that undergraduates live in dormitories. As a result, institutional "auxiliary enterprises" may suffer costly underutilization. On the other hand, these self-sufficient students may need more support in terms of counseling services to help them use their independence to advantage. Resources available to student services are especially limited, however, and adequate funds will be difficult to obtain. Legislators and administrators

*Minority students have also been said to be reluctant to take out loans; however, across income levels and regardless of institution attended, black students are most likely to borrow money to meet college costs. The frequency of borrowing and the amount of loans continue to increase for black students. Detailed descriptions of borrowing by race are included in *Equal Educational Opportunity for Blacks in U.S. Higher Education, An Assessment*, Institute for the Study of Educational Policy, Howard University, Washington, DC: Howard University Press, 1976, p. 233, and Tables E-12 through E-15, Appendix E, pp. 312-22.

**Participation in the loan program administered by the Pennsylvania Higher Education Assistance Agency has increased significantly since its inception in 1964. Volume increased during 10 of its 12 years of existence from 4,623 loans in 1964 to 75,798 in 1975. The average loan guaranty in 1964 was \$767, rising to \$1,468 by 1975. See *Annual Report*, Pennsylvania Higher Education Assistance Agency, 1975-76, p. 23.

will have to take a long, careful look at the revenues and expenditures associated with this new group of students.

Financial Effects of the "New Rural" Students

As more and more people move to nonmetropolitan areas, institutions which were previously not very popular may gain a significant number of students.* Sufficient budgeting flexibility will be required, so that institutions not prepared to deal with increases in students and new kinds of students will be able to do so. In Pennsylvania, while the majority of students attend institutions in metropolitan areas, some shifts to nonmetropolitan colleges and universities are already taking place. Between 1975 and 1976, the percentage of students enrolled in nonurban institutions increased just 1 percent, but several institutions showed sizable increases in enrollment (from 1972 to 1976).** The trend toward rural living developing in Pennsylvania and throughout the United States appears likely to continue through the next decade. A negative impact on urban institutions (declining enrollments and accelerating financial difficulties) can be expected, with a concomitant positive impact on suburban and rural schools.

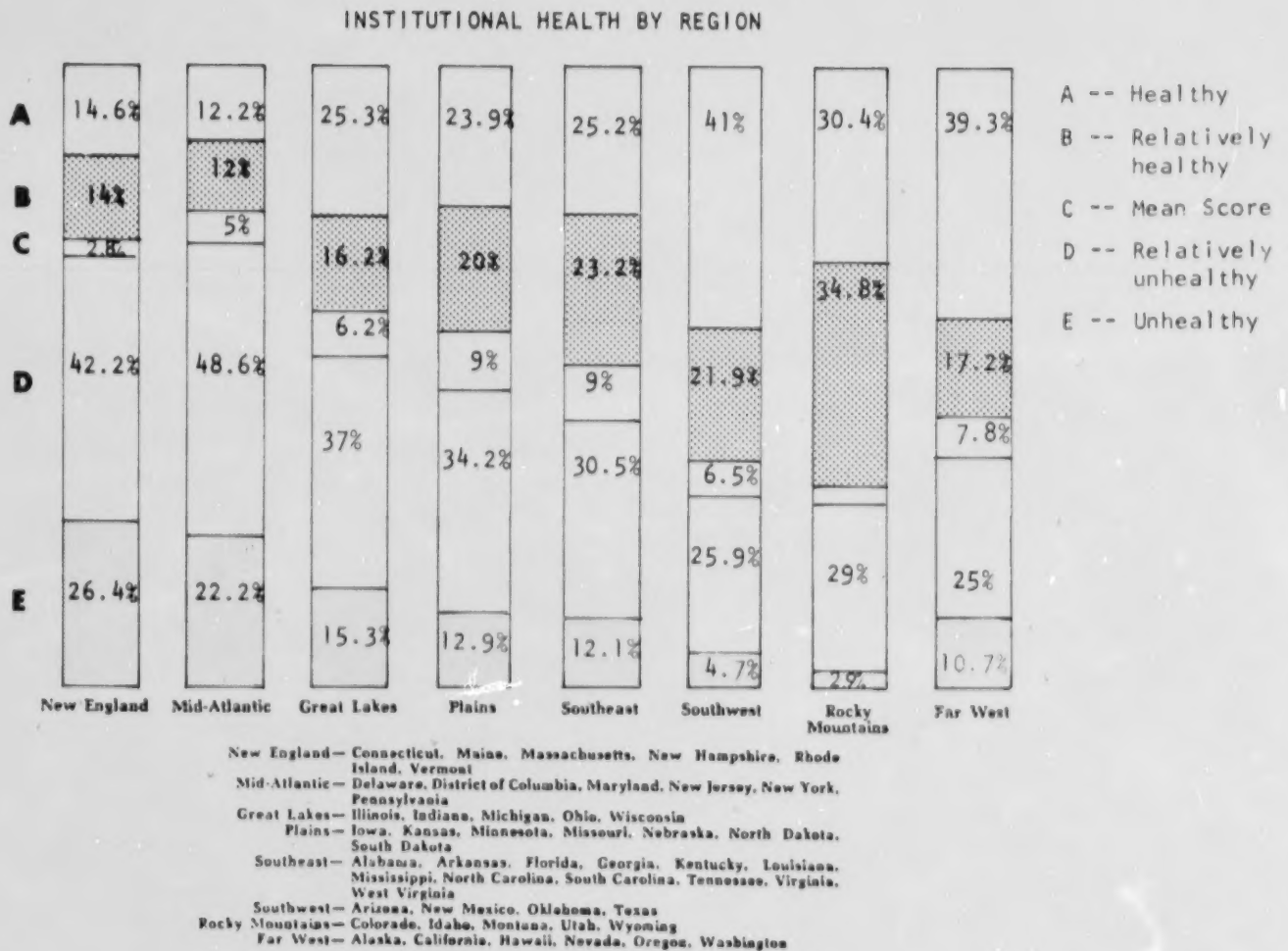
The growing popularity of the "sun belt," the southern and western regions of the United States, has already caused a number of states in the northern industrial tier, including Pennsylvania, to lose residents. Because the largest age group to migrate from Pennsylvania in recent years has been young adults, the effects of this "move to the sun" could have especially strong implications for the financial future of postsecondary education in the state. Not only are potential students leaving, but also members of the cohort most likely to begin family formation. This

*For a detailed explanation of this shift, see Gordon De Jong, op. cit., p. 5.

***Enrollment in Institutions of Higher Education by County, Fall 1972-76*, Pennsylvania Department of Education, Bureau of Information Systems, Division of Education Statistics, March 1977. Nonmetropolitan institutions included in this group are Butte County Community College, Indiana University of Pennsylvania, Westminster College (Lawrence County), and Williamsport Area Community College.

development contributed to the mid-Atlantic region being dubbed one of two U.S. areas with the fewest "financially healthy" postsecondary institutions (see Figure 43).*

FIGURE 43. INSTITUTIONAL HEALTH BY REGION**



*Andrew H. Lupton, John Hugenblich, and Joseph Hegison, "The Financial State of Higher Education," *Change*, September 1976, pp. 29, 33.

**Ibid., p. 33.

ECONOMIC VALUE OF EDUCATION: A GROWING DEBATE

As education becomes more expensive, both in terms of production and participation, questions about its economic worth surface with increasing frequency. Being "worthwhile" is usually translated to mean "preparing
→ people for jobs," an approach that gives little support to the notion that education is a "good" that should be funded because of the societal benefits
== attached to it.*

Financing plans that have survived for decades are being reexamined in the context of changing perceptions about the link between education and work. Publicity about "overeducation" and "underemployment," while perhaps altering people's expectations about jobs to some degree, has not yet been a great deterrent to participation in postsecondary education. Students, potential students, and their parents (those representing the "demand" side of education) and institutions, legislators, and "friends" of institutions (the "supply" side) know that unemployment is lower among college graduates. They are therefore willing to support postsecondary education, at least to its current level of funding. For women, whose participation in the labor force has been very strongly correlated with education, continuing investment in postsecondary education seems particularly worthwhile, at least for *promised* benefits.

Despite deterioration of the job market since 1969, people continue to look to education as a key to good positions. They seem to believe that unemployment or underemployment will affect "someone else." While complaints abound, people continue to participate in college programs. It is becoming increasingly clear, however, that the downturn in the job market is not a temporary (or short-term) phenomenon. In the not too distant future, public understanding of unemployment and underemployment is likely to become more realistic. As can be seen in Figures 44 and 45, the monetary returns on investment in postsecondary education are not as high as they once were,

*Support of the concept of societal benefits or user benefits is elaborated in Howard Bowen and Paul Servede, *Who Benefits from Higher Education and Who Should Pay?*, American Association for Higher Education, Washington, DC, 1972. Also, refer to the "human capital" authors, a number of whom are noted in Chapter I of this report.

FIGURE 44. PERCENTAGES OF COLLEGE GRADUATES ENTERING NONMANAGERIAL AND NONPROFESSIONAL JOBS*

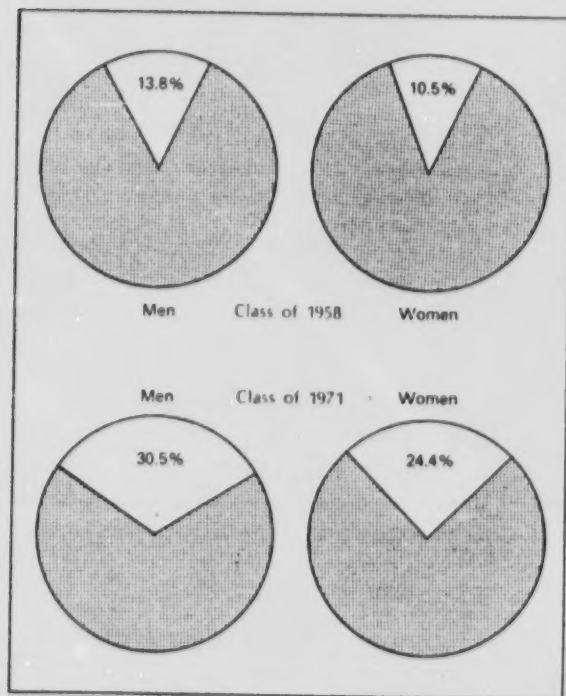
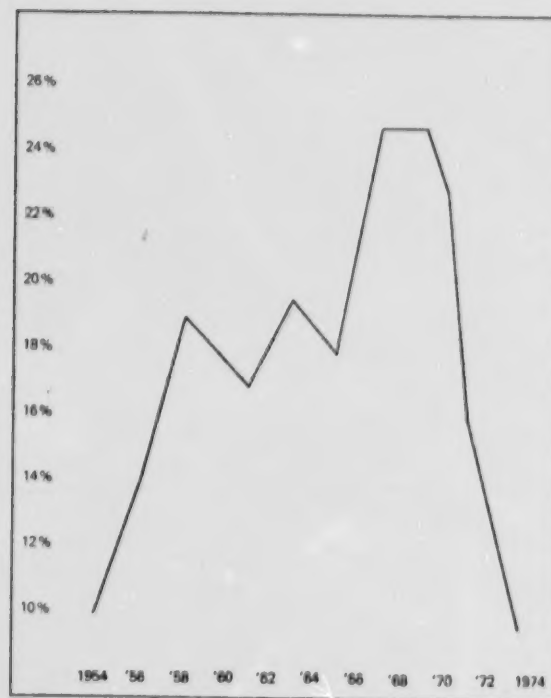


FIGURE 45. STARTING SALARY ADVANTAGES OF COLLEGE GRADUATES OVER AVERAGE WAGE AND SALARY EARNINGS**



*Richard Freeman and J. Herbert Holloman, "The Declining Value of College Going," *Change*, September 1976, p. 25.

**Ibid., p. 27.

and there is reason to believe that the situation will not be changed significantly in the next decade.

Education, as it is now organized and financed, is not responding well to problems of unemployment and underemployment. James O'Toole summarized the situation and its consequences:

As it becomes clear that education will not pay off as promised, there is a very real possibility of a massive build-up of disillusionment and a sense of betrayal among those stuck with a "bad investment." Indeed, the selling of education solely as a passport to a good job could backfire, and an entire disappointed generation could withdraw its support for an important social institution. Then, the important functions of education for self-development, leisure, family, and citizenship will also be imperiled. The refusals of middle class voters to approve school bonds, the cries of intellectuals to deschool society, and the general attack on the irrelevance of education may be the opening salvos of a general move to discredit an institution that has failed to meet the false economic expectations that have been created for it.*

CONCLUSION

The financial picture for postsecondary education over the next decade is quite dependent on societal developments outside of educational institutions. Yet, the economic factors which may be most important (e.g., overall economic health of the United States) are not easy to forecast. Still, a number of concerns clearly present themselves:

- The revenues of postsecondary institutions are quite dependent on the health of the economy and, on a "micro" level, shifts in employment and individual incomes. Through 1990, the question of whether or not to invest in postsecondary education at all will be determined in the context of these factors.
 - Corporation-sponsored postsecondary education could add more revenues to existing institutions and/or become a major competitor.
- Responses to corporate needs by educational institutions over the

*James O'Toole, "The Reserve Army of the Underemployed, Part I," *Change*, May 1975, p. 31.

next five years could be critical in determining which of these alternatives predominates.

- A changing student body composition includes more older and rural students, more women, and more nontraditional learners. Each of these groups, with specific needs, brings new financial requirements. The changing student body may require changes in the methods of allocating student financial aid.
- The economic value of education will continue to be debated over the next decade, with postsecondary institutions in a defensive posture. The outcome of these debates will be critical to the future role of postsecondary education.

APPENDIX A

SAMPLE SCENARIOS DESCRIBING
ALTERNATIVE PATTERNS OF
SOCIETAL CHANGE

SMALL BECOMES BEAUTIFUL*

The times are tough, but spirits are high. While such a balance seems inconsistent with America's pampered past, the new spirit is one which recognizes very real--and sometimes harsh--limits to standards of living. Pride in building one's own home, the warmth of friends, and the opportunity to become one with nature are important virtues in this society. Personal growth accompanies economic restraint. An attitude of reverence toward the environment pervades the whole society.

The U.S. government of 1990 is participatory and decentralized and plays a rather limited role. A network of producer and consumer cooperatives are basic to the national economy. Both extreme wealth and extreme poverty have diminished, but the overall standard of living (by economic measures) is definitely lower than it was in the 1970s. People are concerned about day-to-day living and the skills necessary to be as self-sufficient as possible. For example, the ability to diagnose and treat many personal illnesses is considered a basic life skill. The typical home is powered by its own combination of windmills, solar energy, or other devices, often constructed by the owners. These devices are representative of the small-scale technology now favored.

Things look tight compared to the abundance of earlier days, but a transformation of individuals has occurred and that has made all the difference. Small really is beautiful.

*This view has been made popular by E. F. Schumacher, *Small is Beautiful*, New York: Harper & Row, 1973.

GROWTH IS GOOD*

The years between 1975 and 1990 have been years of increasing economic growth and political stability for the United States. Optimism is high as technological advances continue to provide the momentum for a society on the move.

Large corporations are prominent in 1990, having great influence on their employees, the nation, and the world. Corporations have a strong sense of social responsibility which grows out of an awareness of their own best interests. Competition remains heated among large corporations for increasing shares of a growing national and world market. The U.S. government regulates, but certainly does not control, business expansion. De facto internationalism is growing under the impetus of international trade, but world war continues to lurk as a sort of ghost in the closet.

While new technologies have increased production, they have also come to the rescue when environmental tragedies seemed imminent. This situation has fostered a growth in personal consumption and generally high standards of living. Differences in wealth are still dramatic, but extreme poverty has been eliminated. Clearly, a competitive, highly technological orientation is most favored in this society, but a broad range of personal interests also exists. The country continues to grow and the future looks bright.

*This general image of the future is usually associated with writers such as Daniel Bell (*On the Coming Post Industrial Society*, New York: Basic Books, 1973) or--from a more optimistic and generally less critical perspective--Herman Kahn (see Herman Kahn and Anthony J. Weiner, *The Year 2000*, New York: Macmillan, 1967).

THE DOOMSAYERS WERE RIGHT!*

The United States of 1990 is writhing in economic and ecological disorder. The country totters on many brinks, jerking one way and then another, unable to recall its upright and stable position in the world.

Corporate management is shellshocked by failures on many fronts. Market fluctuations are extreme; consumer spending, dismal; and government regulation, unpredictable. At the same time, corporate employees are defenseless; people feel fortunate to hold any job at the prevailing subsistence wages. The environment is tragically degraded, and technological remnants (mostly fuel-guzzling machinery) are used sparingly by industry.

Wealth is distributed unevenly, with the vast majority being very poor. Consumer goods are rationed and shortages plague the economy, as the government scrambles to restore basic societal stability. The people were, of course, ill-prepared for this new life of ultra-frugality. Their attitude is grim. The only pleasure for many lies in snatching memories of better days.

The government which remains is a government by default. Few yearn to guide this beleaguered society, for the problems look all-encompassing; and the government is unable to exert strong control. The United States is a lonely nation, an injured giant embarrassed before the rest of the world.

*This image of a possible future has been presented most articulately by Robert Heilbroner, *An Inquiry into the Human Prospect*, New York: Norton, 1974.

ADVENT OF WORLD ORDER*

The U.S. society of 1990 is a social democracy in a growing world community. The functional and emotional appeal of the nation-state has diminished greatly. Now, most nations deal internationally through regional confederations and increasingly refer their disputes to a World Court. The prospects for some sort of world government--at least on a limited scale--are generally viewed as imminent and desirable.

The seas and their resources are under international control. Environmental problems are considered and often solved at a world level. Communications technologies continue to draw the world closer, with frequent cross-cultural exchanges.

While the economy of the United States is characterized by slow and controlled growth, it is developing along ecologically sound lines. Biodegradable packaging, for example, is more the rule than the exception. The provision of quality social services has absorbed a growing share of the work force, and the unemployment rate is low. This society has organized itself rationally to achieve ideals of equality, world order, and ecological soundness.

*The Institute for World Order in New York has encouraged exploration of this image of the future. See especially, Richard Falk, *A Study of Future Worlds: Designing the Global Community*, World Order Models Project, New York: Free Press, 1975.

BIG BROTHER IS YOUR FRIEND*

The world of 1990 is characterized by polarization along light/dark, rich/poor, have/have-not lines. The gradual acceptance of authoritarian governments in most of the developed countries has led to a world reminiscent of "Friendly Fascism."

A coercive, single-party government rules the United States. The chief beneficiaries of this new oligarchy are the corporate elite and their allies. Private corporations receive government loans and grants to install antipollution technology and modernize plants, while corporate income taxes are nonexistent. The independent gas station and family-owned businesses have been squeezed out by large corporations. Under national plans developed jointly by business and government leaders, a steady supply of consumer goods is produced while social services have diminished. The GNP has not fared badly under this arrangement, but the distribution of wealth has become even more uneven than in the 1970s.

Today, social control and security are the dominant values. The population has surrendered numerous personal freedoms in return for the economic stability and safe streets promised by a strong central government. This is a society in which people are quite willing to leave decisions about nuclear power and health services delivery systems to the recognized experts. This is a world not unlike Orwell's 1984: Big Brother is in control, but he tells you he is your friend.

*George Orwell's book, *1984* (New York: New American Library, 1949), is the most well-known source of this image of the future. For a more recent and critical assessment, see Bertram M. Gross, "Friendly Facism: A Model for America," *Social Policy*, vol. 1, no. 4, November/December 1970, pp. 44-53.

APPENDIX B

SUPPORTING DATA

TABLE 1. PROJECTED AVERAGE ANNUAL
POPULATION GROWTH RATES*
(Percent)

<u>Region</u>	<u>1970-75</u>	<u>1975-80</u>	<u>1980-85</u>
New England			
Maine	1.21	1.17	1.26
New Hampshire	1.98	1.76	1.69
Vermont	1.09	0.93	0.95
Massachusetts	0.46	0.33	0.37
Rhode Island	-0.47	-0.47	-0.48
Connecticut	0.39	0.19	0.19
Middle Atlantic			
New York	-0.13	-0.17	-0.11
New Jersey	0.38	0.21	0.23
Pennsylvania	0.04	-0.03	0.04
East North Central			
Ohio	0.18	0.07	0.11
Indiana	0.42	0.28	0.32
Illinois	0.05	-0.05	0.01
Michigan	0.58	0.44	0.46
Wisconsin	0.80	0.66	0.72
West North Central			
Minnesota	0.59	0.46	0.51
Iowa	0.30	0.25	0.35
Missouri	0.34	0.26	0.33
North Dakota	0.52	0.52	0.71
South Dakota	0.48	0.48	0.65
Nebraska	0.77	0.70	0.80
Kansas	0.15	0.10	0.19
South Atlantic			
Delaware	1.05	0.81	0.72
Maryland	0.83	0.56	0.47
Virginia	1.26	1.10	1.05
West Virginia	0.64	0.68	0.85
North Carolina	1.34	1.23	1.24
South Carolina	1.61	1.52	1.53
Georgia	1.36	1.19	1.16
Florida	4.03	3.60	3.44

*Institute for the Future projection, adjusted from U.S. Bureau of the Census data.

TABLE 1 (Continued)

<u>Region</u>	<u>1970-75</u>	<u>1975-80</u>	<u>1980-85</u>
East South Central			
Kentucky	1.01	0.96	1.04
Tennessee	1.24	1.12	1.14
Alabama	0.92	0.85	0.91
Mississippi	1.08	1.03	1.13
West South Central			
Arkansas	1.84	1.73	1.83
Louisiana	0.77	0.62	0.63
Oklahoma	1.11	1.02	1.08
Texas	1.70	1.50	1.48
Mountain			
Montana	1.44	1.40	1.52
Idaho	2.70	2.67	2.77
Wyoming	2.29	2.29	2.51
Colorado	2.64	2.36	2.27
New Mexico	2.32	2.19	2.26
Arizona	4.39	3.98	3.85
Utah	2.51	2.29	2.23
Nevada	3.71	2.85	2.46
Pacific			
Washington	0.72	0.53	0.49
Oregon	1.72	1.48	1.49
California	1.13	0.86	0.79
Alaska	2.90	2.60	2.45
Hawaii	2.24	1.74	1.47

TABLE 2. PROJECTED AVERAGE ANNUAL GROWTH RATES
FOR PER CAPITA INCOME*

(Percent)

Region	1975-80	1980-85
New England		
Maine	3.82	2.61
New Hampshire	3.76	2.52
Vermont	3.87	2.83
Massachusetts	3.56	2.32
Rhode Island	3.65	2.38
Connecticut	3.39	2.21
Middle Atlantic		
New York	3.43	2.21
New Jersey	3.44	2.25
Pennsylvania	3.60	2.41
East North Central		
Ohio	3.58	2.38
Indiana	3.61	2.46
Illinois	3.51	2.31
Michigan	3.63	2.34
Wisconsin	3.70	2.39
West North Central		
Minnesota	3.79	2.43
Iowa	3.63	2.46
Missouri	3.55	2.49
North Dakota	4.09	2.57
South Dakota	3.88	2.55
Nebraska	3.66	2.45
Kansas	3.40	2.46
South Atlantic		
Delaware	3.56	2.26
Maryland	3.44	2.39
Virginia	3.52	2.57
West Virginia	3.56	2.66
North Carolina	3.58	2.56
South Carolina	3.72	2.64
Georgia	3.70	2.57
Florida	3.61	2.36

*Institute for the Future projection, adjusted from U.S. Department of Commerce data.

TABLE 2 (Continued)

Region	1975-80	1980-85
East South Central		
Kentucky	3.76	2.72
Tennessee	3.63	2.65
Alabama	3.69	2.69
Mississippi	3.93	2.81
West South Central		
Arkansas	3.71	2.73
Louisiana	3.75	2.60
Oklahoma	3.53	2.60
Texas	3.58	2.47
Mountain		
Montana	3.62	2.51
Idaho	3.82	2.53
Wyoming	3.51	2.41
Colorado	3.60	2.36
New Mexico	3.76	2.49
Arizona	3.37	2.20
Utah	3.83	2.52
Nevada	3.16	2.09
Pacific		
Washington	3.66	2.37
Oregon	3.53	2.44
California	3.32	2.24
Alaska	3.26	2.22
Hawaii	3.18	2.17

TABLE 3. PROJECTED RATIO OF PER CAPITA INCOME
TO NATIONAL AVERAGE*

Region	1975	1977	1980	1982	1985
New England					
Maine	0.81	0.82	0.83	0.83	0.84
New Hampshire	0.90	0.91	0.91	0.92	0.92
Vermont	0.84	0.85	0.86	0.86	0.88
Massachusetts	1.04	1.04	1.04	1.04	1.04
Rhode Island	0.99	0.99	1.00	1.00	1.00
Connecticut	1.18	1.18	1.18	1.17	1.17
Middle Atlantic					
New York	1.11	1.11	1.11	1.11	1.10
New Jersey	1.14	1.14	1.14	1.13	1.13
Pennsylvania	1.01	1.01	1.01	1.01	1.02
East North Central					
Ohio	0.99	0.99	0.99	0.99	0.99
Indiana	0.96	0.96	0.96	0.97	0.97
Illinois	1.15	1.15	1.15	1.15	1.15
Michigan	1.05	1.05	1.05	1.05	1.05
Wisconsin	0.96	0.97	0.97	0.97	0.97
West North Central					
Minnesota	0.99	0.99	1.00	1.00	1.00
Iowa	1.03	1.03	1.04	1.04	1.04
Missouri	0.93	0.94	0.94	0.94	0.94
North Dakota	0.98	0.99	1.00	1.01	1.01
South Dakota	0.84	0.84	0.85	0.85	0.86
Nebraska	1.03	1.03	1.04	1.04	1.04
Kansas	1.02	1.02	1.02	1.02	1.02
South Atlantic					
Delaware	1.15	1.15	1.15	1.15	1.14
Maryland	1.10	1.10	1.09	1.10	1.10
Virginia	0.98	0.98	0.98	0.99	0.99
West Virginia	0.83	0.84	0.84	0.84	0.85
North Carolina	0.84	0.84	0.84	0.85	0.85
South Carolina	0.78	0.79	0.79	0.80	0.80
Georgia	0.86	0.87	0.87	0.88	0.88
Florida	0.96	0.96	0.96	0.96	0.96

*Institute for the Future projection, adjusted from U.S. Department of Commerce data.

TABLE 3 (Continued)

Region	1975	1977	1980	1982	1985
East South Central					
Kentucky	0.83	0.83	0.84	0.84	0.85
Tennessee	0.83	0.83	0.84	0.84	0.85
Alabama	0.79	0.79	0.79	0.80	0.81
Mississippi	0.69	0.69	0.70	0.71	0.72
West South Central					
Arkansas	0.78	0.79	0.79	0.80	0.81
Louisiana	0.83	0.84	0.84	0.85	0.85
Oklahoma	0.89	0.89	0.89	0.90	0.90
Texas	0.96	0.96	0.96	0.96	0.96
Mountain					
Montana	0.92	0.92	0.92	0.93	0.93
Idaho	0.88	0.88	0.89	0.89	0.90
Wyoming	1.04	1.04	1.04	1.04	1.04
Colorado	1.02	1.02	1.02	1.02	1.02
New Mexico	0.81	0.81	0.82	0.82	0.83
Arizona	0.91	0.91	0.90	0.90	0.90
Utah	0.84	0.84	0.85	0.85	0.86
Nevada	1.13	1.12	1.11	1.10	1.10
Pacific					
Washington	1.06	1.06	1.07	1.07	1.07
Oregon	0.98	0.98	0.98	0.98	0.98
California	1.12	1.11	1.11	1.10	1.10
Alaska	1.60	1.59	1.58	1.58	1.57
Hawaii	1.11	1.11	1.10	1.09	1.09

TABLE 4. EMPLOYMENT AT OPERATIONS PRODUCING PENNSYLVANIA ANTHRACITE (INCLUDING STRIP CONTRACTORS) IN 1974*

	1974**	1973
Average number working daily		
Underground	594	716
Strip	1,376	1,633
Culm banks	390	327
Preparation plants	1,366	1,214
Other surface	101	143
Total excluding dredge operations	3,827	4,033
Dredge operations	20	50
Total	3,847	4,083
Average number of days active		
All operations except dredges	218	233
Dredge operations	300	300
Average, all operations	219	234
Man-days of labor		
All operations except dredges	834,000	940,000
Dredge operations	6,000	15,000
Total, all operations	840,000	955,000
Average tons per man-day		
All operations except dredges	7.75	6.80
Dredge operations	25.08	29.41
Average, all operations	7.87	7.15

*Source: *Minerals Yearbook*, U.S. Department of the Interior, Bureau of Mines, Washington, DC: U.S. Government Printing Office, 1974.

**Preliminary.

TABLE 5. DEMONSTRATED COAL RESERVE BASE OF THE UNITED STATES ON JANUARY 1, 1974, TOTAL UNDERGROUND AND SURFACE (STATES WITH LARGEST RESERVES) (MILLION TONS)*

State	Sulfur range, percent				Total
	<1.0	1.1-3.0	>3.0	Unknown	
Alaska	11,458.4	184.2	--	--	11,645.4
Colorado	7,475.5	786.2	47.3	6,547.3	14,869.2
Illinois	1,095.1	7,341.4	42,968.9	14,256.2	65,664.8
Indiana	548.8	3,305.8	5,262.4	1,504.1	10,622.6
Kentucky, East	6,558.4	3,321.8	299.5	2,729.3	12,916.7
Kentucky, West	0.2	564.4	9,243.9	2,815.9	12,623.9
Montana	101,646.6	4,115.0	502.6	2,166.7	108,396.2
North Dakota	5,389.0	10,325.4	268.7	15.0	16,003.0
Ohio	134.4	6,440.9	12,634.3	1,872.0	21,077.2
Pennsylvania	7,318.3	16,913.6	3,799.6	2,954.2	31,000.6
West Virginia	14,092.1	14,006.2	6,823.3	4,652.5	39,589.8
Wyoming	33,912.3	14,657.4	1,701.1	3,060.8	53,336.1

*Ibid.

TABLE 6. COAL PRODUCTION IN PENNSYLVANIA*

Year	Total production in millions of short tons	Total production as a % of total U.S. production
1960	84.2	19.4
1965	95.2	18.1
1970	90.2	14.7
1975	89.3	13.8

*Source: Statistical Abstract of the United States.

TABLE 7. NUMBER OF BUSINESS FIRMS IN PENNSYLVANIA
AND THE UNITED STATES*

Year	Total mfg. establishments		Mfg. estab- lishments with 20 or more employees		Total service establishments		Total establishments	
	PA.	U.S.	PA.	U.S.	PA.	U.S.	PA.	U.S.
1954	18,795	287,553			51,850	785,589	70,645	1,073,142
1958	19,337	303,387			60,621	979,195	79,958	1,282,582
1963	19,459	311,931			63,830	1,061,673	83,289	1,373,604
1967	18,771	311,140	8,369	110,256	66,859	1,187,814	85,630	1,498,954
1972	18,398	320,710	8,070	114,195	73,973	1,370,637	92,371	1,691,347

*Source: *Statistical Abstract of the United States*, Table, "Manufac-
ture by State."

TABLE 8. INDUSTRIAL AND COMMERCIAL FAILURES IN
PENNSYLVANIA AND THE UNITED STATES

Year	Number of firms**		Failure trend* rate per 10,000	
	PA.	U.S.***	PA.	U.S.***
1964	695	13,501	43.7	53
1965	594	13,514	37.9	53
1966	548	13,061	35.7	52
1967	556	12,364	37.5	49
1968	457	9,636	31.2	39
1969	371	9,154	26.0	37
1970	447	10,748	31.5	44
1971	431	10,326	31.1	42
1972	407	9,566	29.5	38
1973	382	9,345	28.0	36
1974	530	9,714	39.8	38
1975	740	11,432	58.2	43

**Business Failure Record*, compiled by the Business Economics Division, Dun and Bradstreet, Inc.

***Statistical Abstract of the United States*; includes concerns which are discontinuing following assignment, voluntary or involuntary petition in bankruptcy, attachment, execution, foreclosure, etc.

***Excludes Alaska and Hawaii.

TABLE 9. CHANGE IN NUMBER OF MANUFACTURING
ESTABLISHMENTS IN PENNSYLVANIA*

Year	Number of establishments	Net change from previous period	New estab- lishment
1964	18,125	+272	571
1965	18,218	+ 94	658
1966	18,165	- 53	637
1967	18,004	-161	611
1968	17,852	-152	537
1969	17,875	+ 23	722
1970	17,649	-226	542
1971	17,304	-345	626
1972	17,128	-176	620
1973	16,967	-161	624
1974	16,749	-218	598

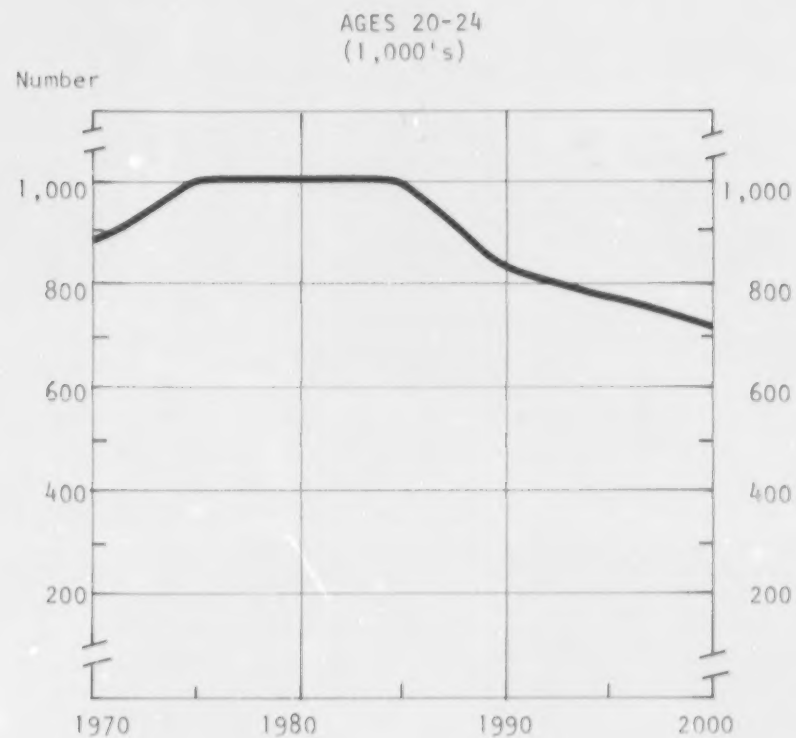
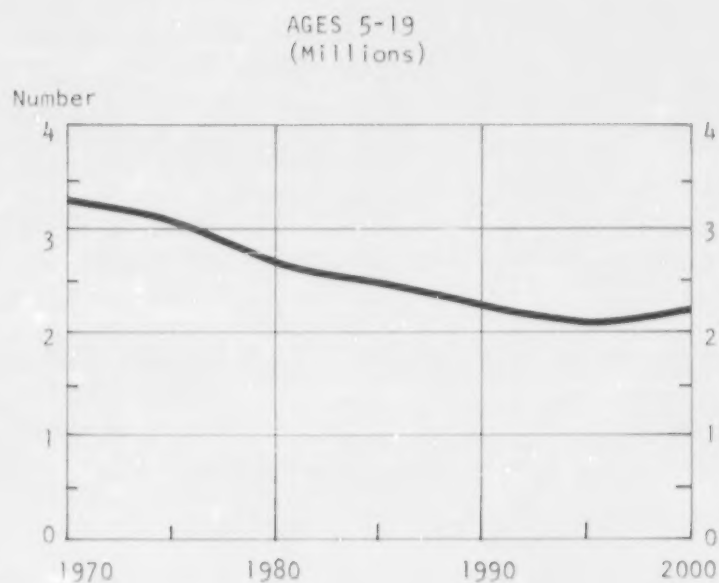
*Pennsylvania Industrial Census, Statistics by Industry and Size of
Establishment, Pennsylvania Department of Commerce, Release No. M-4-73.

TABLE 10. HOW THE STATES RANK*

State	State appropriations for higher education					
	As share of personal income		As share of state general revenue		Fiscal capacity	
	Percent	Rank	Percent	Rank	Index	Rank
Arizona	1.61	3	18.9	16	15	47
California	1.46	6	16.7	28	22	34
Connecticut	0.66	47	10.2	45	26	24
Delaware	0.94	27	12.0	40	36	7
Florida	0.94	29	18.0	22	23	32
Georgia	0.92	34	15.6	31	21	36
Maryland	0.78	43	13.0	37	30	17
Michigan	1.02	22	17.8	24	18	43
New Hampshire	0.57	50	11.3	42	32	13
New Jersey	0.69	46	10.5	44	27	23
New Mexico	1.32	8	15.0	33	20	39
New York	1.25	10	11.3	43	19	41
Ohio	0.62	49	12.4	38	37	5
Pennsylvania	0.80	40	9.5	48	28	20
South Carolina	1.21	12	16.4	30	16	46
Texas	1.07	17	20.1	11	36	8
U.S. average	1.03		14.6		24	

*"Part of Colleges' Money Crisis May End Soon, Carnegie Says," *Chronicle of Higher Education*, May 31, 1976, pp. 1, 8. These states were included because (1) they represent the Northeast Region or (2) they are part of the "sun belt."

FIGURE 1. PROJECTED POPULATION FOR PENNSYLVANIA*



*Population Projections for Pennsylvania and Counties, 1970-2000, Pennsylvania Department of Education, Bureau of Information Systems, 1975.

FIGURE 1 (Continued)

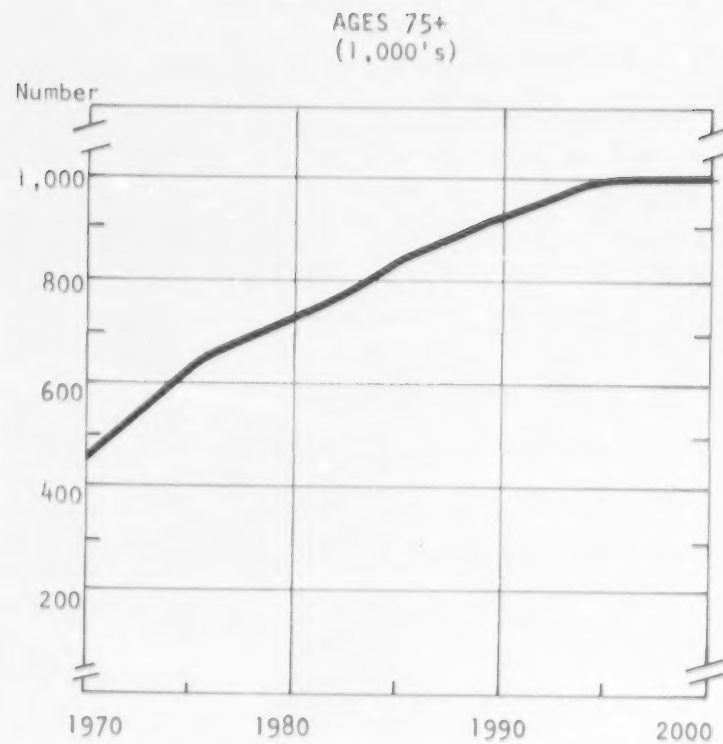
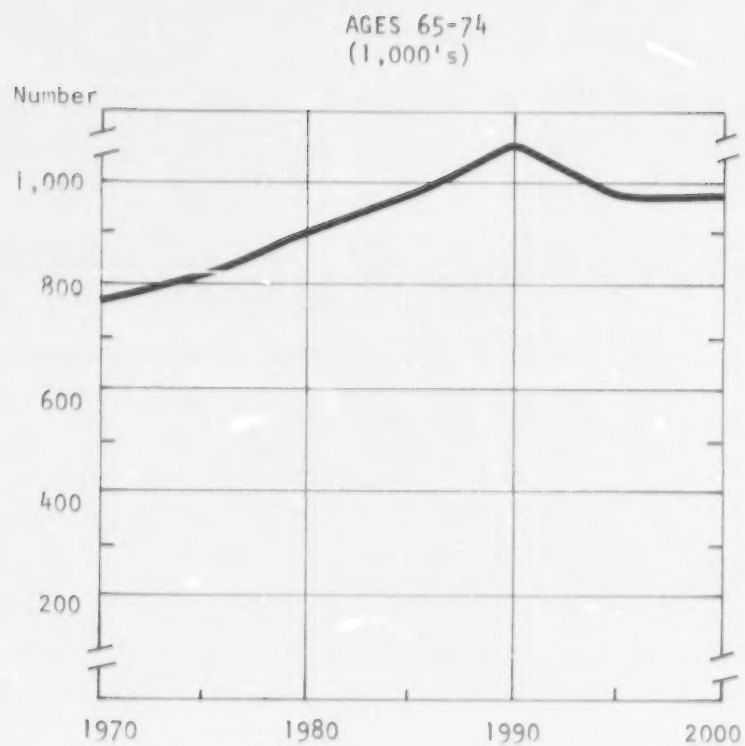
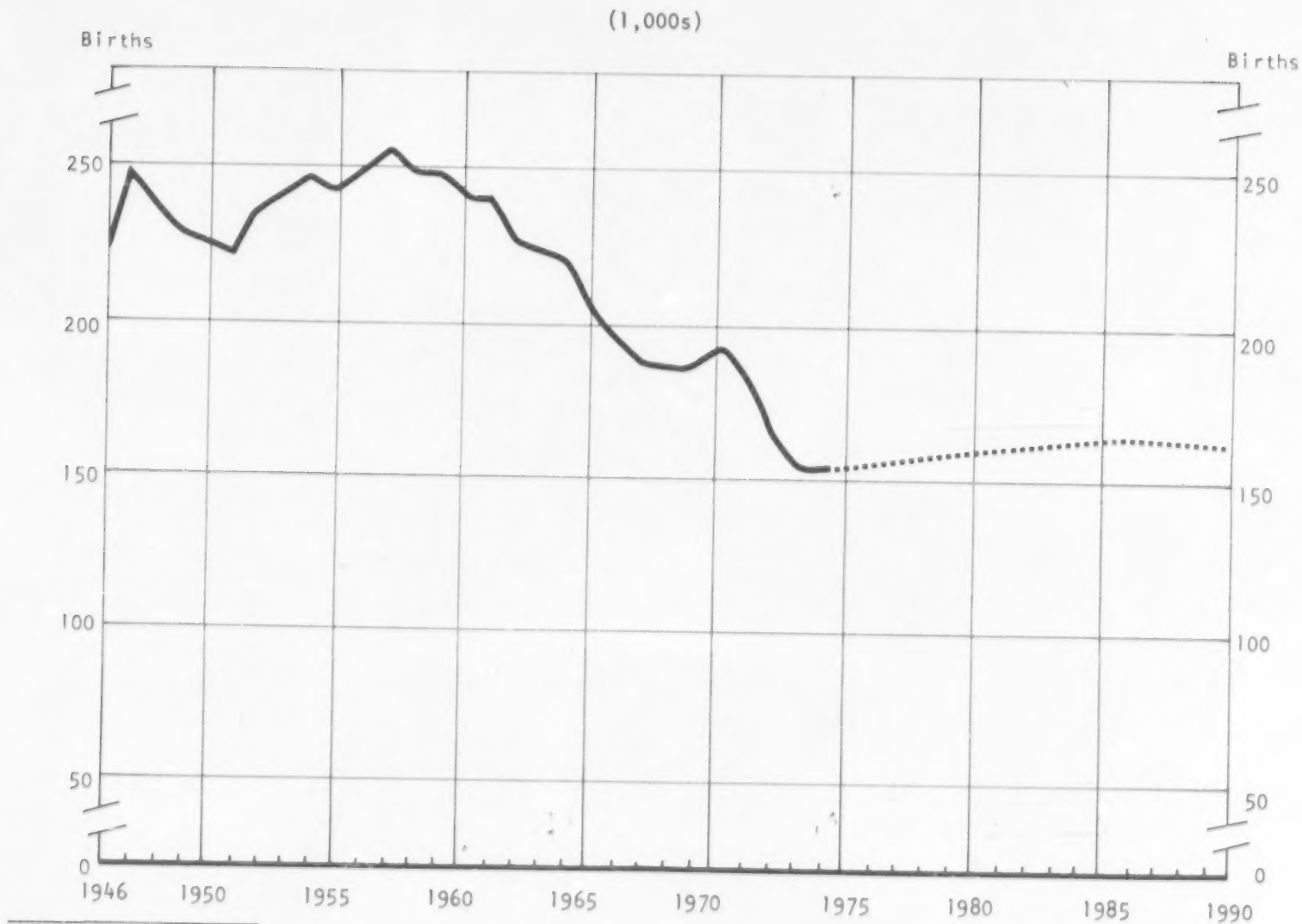


FIGURE 2. RESIDENT LIVE BIRTHS FOR PENNSYLVANIA,
1946-1974 AND 1975-1990*



*Ibid.

FIGURE 3A. NET WHITE OUT-MIGRATION, 1960-1970*



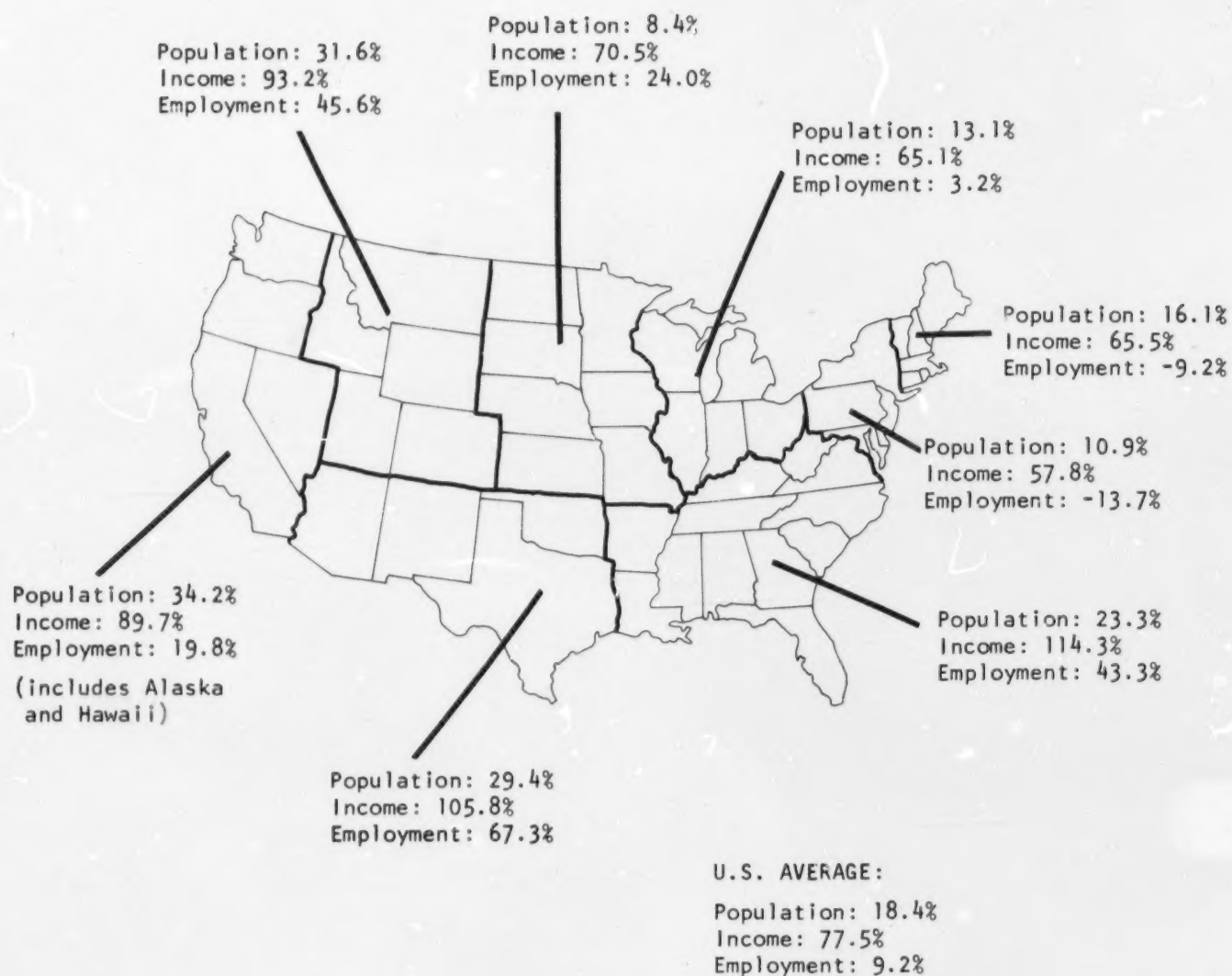
FIGURE 3B. NET BLACK OUT-MIGRATION, 1960-1970*



-  Less than 100,000 Persons (or Net In-Migration)
-  100,000 to 200,000
-  200,000 to 500,000
-  Over 500,000

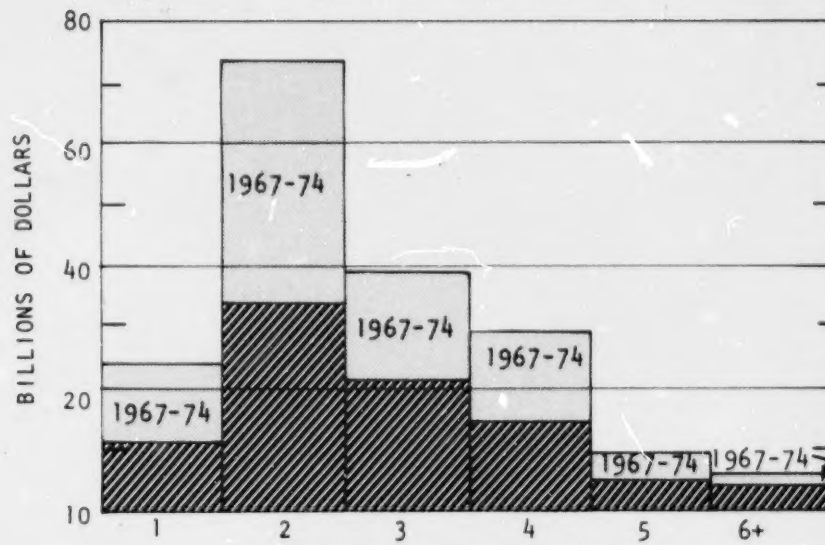
*Derived from the U.S. Department of Labor, Manpower Administration; and *Manpower Report of the President*, Department of Health, Education, and Welfare, Office of Education, Washington, DC, 1974, p. 73.

FIGURE 5. PERCENT CHANGE IN POPULATION,
REAL PERSONAL INCOME, AND
MANUFACTURING EMPLOYMENT BY
REGION, 1960-1975*



*"A Policy for Domestic Detente," *Business Week*, May 17, 1976, p. 93.

FIGURE 6. TOTAL DISCRETIONARY INCOME
BY HOUSEHOLD SIZE*



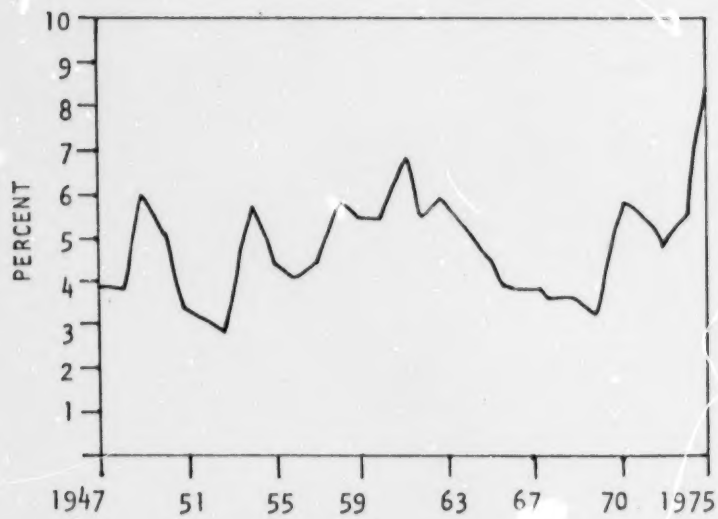
*CAP Report, Institute for the Future, February-March 1977.

FIGURE 7. DISCRETIONARY INCOME BY HOUSEHOLD
SIZE IN "GOOD" AND "BAD" YEARS*

	<u>1 Person</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6 or More</u>
1972	+22.2%	+20.7	22.5	28.7	34.1	31.2
1973	+14.9%	11.5	5.2	-1.6	-0.9	-4.8
1974	-2.8%	-5.8	-5.4	-9.7	-18.6	-18.8

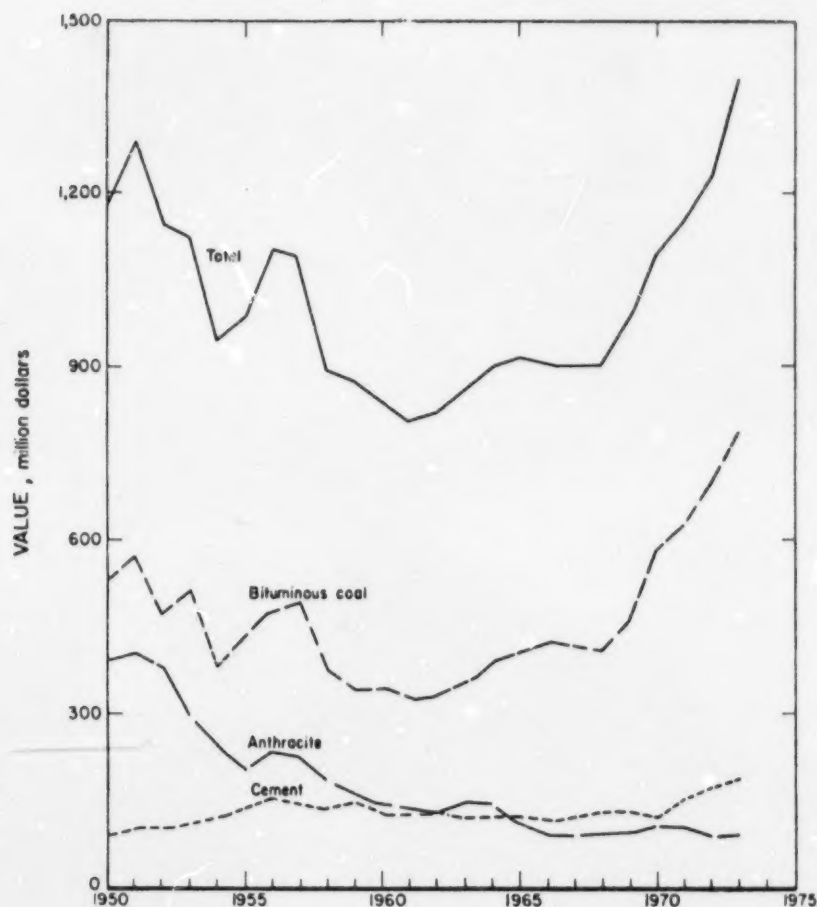
*Ibid.

FIGURE 8. TRENDS IN UNEMPLOYMENT, 1947-1975*



*Handbook of Labor Statistics, 1975, and Employment and Unemployment during 1975, U.S. Department of Labor, Bureau of Labor Statistics.

FIGURE 9. MINERAL PRODUCTION IN PENNSYLVANIA, 1950 - 1975*



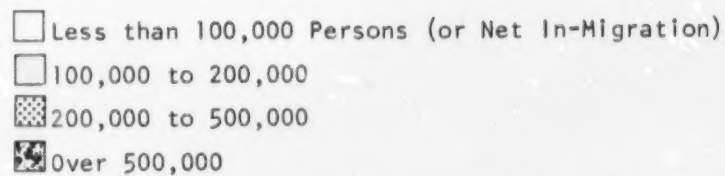
NUMBER AND PRODUCTION OF BITUMINOUS COAL AND LIGNITE MINES

(Thousands of Short Tons)

<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
80,308	81,443	79,400	79,412	78,631	80,491	72,835	75,939	76,403	80,462

*Source: *Minerals Yearbook, Volume I*, U.S. Department of the Interior, Bureau of Mines, Washington, DC: U.S. Government Printing Office, 1976.

FIGURE 4A. NET WHITE IN-MIGRATION, 1960-1970*



*Derived from the U.S. Department of Labor, Manpower Administration; and *Manpower Report of the President*, p. 71.

FIGURE 4B. NET BLACK IN-MIGRATION, 1960-1970*

